EPoX

EP-61BXC-A

A Pentium® II or Deschutes Slot1 Processor based AGP mainboard (100/66MHz)

TRADEMARK

All products and company names are trademarks or registered trademarks of their respective holders.
These specifications are subject to change without notice.

Technical Support Services

If you need additional information, help during installation or normal use of this product, please contact your retailer. If your retailer can not help, you may E-Mail us with any questions at the following address tech@epox.com

Record your serial number before installing your EP-61BXC-A mainboard. (the serial number is located near the ISA slots at the edge of the board)

EPoX EP-61BXC-A serial number:

_____

BIOS Upgrades

Please use either our Web Site or BBS for current BIOS Upgrades.

Internet Access

http://www.epox.com
sales@epox.com
tech@epox.com

Modem Access

31-182-618451 (The Netherlands)

You can access this number via a Hayes-compatible modem with a 2,400 to 28,800 baud rate. The following setup format is required:

8 Data Bits, No Parity, 1 Stop Bit

If your modem is unable to connect at higher baud rates, try connecting at 2,400 baud before contacting Technical Support.

Thank you for using EPoX mainboards!

EPoX

User Notice

No part of this product, including the product and software may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form by any means without the express written permission of EPoX Computer Company (hereinafter referred to as EPoX) except documentation kept by the purchaser for backup purposes.

EPoX provides this manual "as is" without warranty of any kind, either express or implied, including but not limited to the implied warranties or conditions of merchantability or fitness for a particular purpose. In no event shall EPoX be liable for any loss or profits, loss of business, loss of use or data, interruption of business or for indirect, special incidental, or consequential damages of any kind, even if EPoX has been advised of the possibility of such damages arising from any defect or error in the manual or product. EPoX may review this manual from time to time without notice. For updated BIOS, drivers, or product release information you may visit EPoX's home page at: http://www.epox.com

Products mentioned in this manual are mentioned for identification purposes only. Product names appearing in this manual may or may not be registered trademarks or copyrights of their respective companies.

The product name and revision number are both printed on the mainboard itself.

Handling Procedures

Static electricity can severely damage your equipment. Handle the EP-61BXC-A and any other device in your system with care and avoid unnecessary contact with system components on the mainboard.

Always work on an antistatic surface to avoid possible damage to the motherboard from static discharge.

We assume no responsibility for any damage to the EP-61BXC-A mainboard that results from failure to follow installation instructions or failure to observe safety precautions.

> **CAUTION**
>
> The EP-61BXC-A mainboard is subject to damage by static electricity. Always observe the handling procedures.

Table of Contents

Section 1
INTRODUCTION

Components Checklist

✓   A.   (1)   EP-61BXC-A mainboard

✓   B.   (1)   EP-61BXC-A user's manual

✓   C.   (1)   Floppy ribbon cable

✓   D.   (1)   Hard drive ribbon cables

✓   E.   (1)   Foldable Retention Module

   F.   (1)   Heatsink Support Unit (Optional)

   G.   (1)   PS/2 to AT keyboard connector adapter (optional)

✓   H.   (1)   Bus master drivers

      (1)   USDM

Back to Top
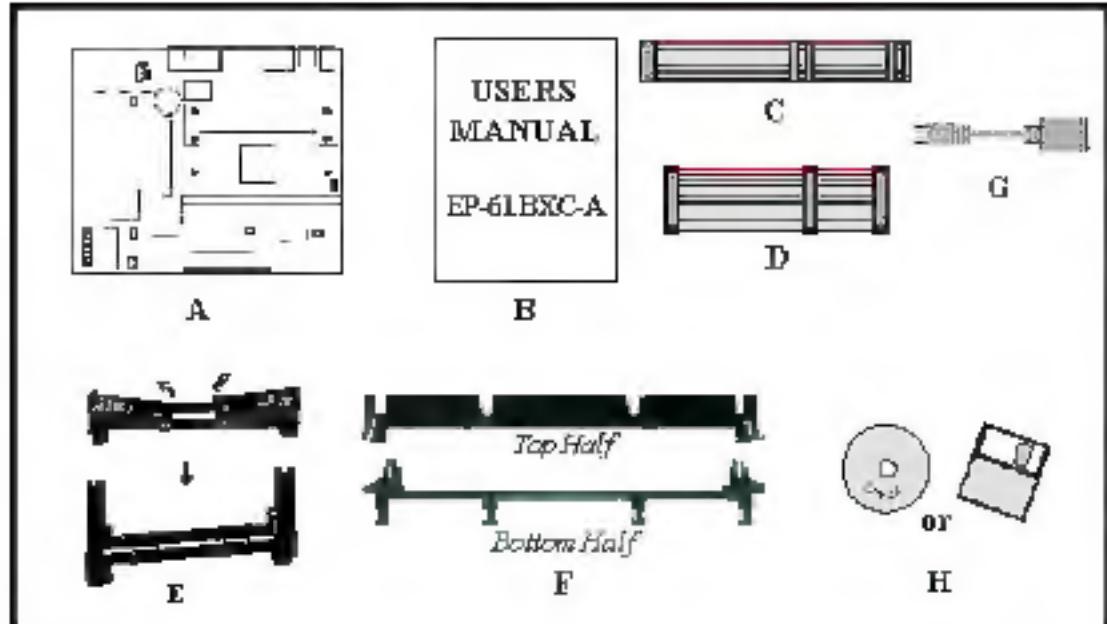
Overview

Pentium II or Deschutes Processor

The Pentium® II or Deschutes Processor (The Deschutes Processor as 300/100MHz, 350/100MHz, 400/100MHz and 450/100MHz speed with 512K-L2 cache Versions) is the follow-on to the Pentium® Processor. The Pentium® II or Deschutes Processor, like the Pentium® Pro processor, implements a Dynamic Execution micro-architecture -- a unique combination of multiple branch prediction, data flow analysis, and speculative execution. This enables the Pentium® II Processor to deliver higher performance than the Pentium® processor, while maintaining binary compatibility with all previous Intel architecture processors.

A significant feature of the Pentium® II or Deschutes Processor, from a system perspective, is the built-in direct multiprocessing support. In order to achieve multiprocessing, and maintain the memory and I/O bandwidth to support it, new system designs are needed. For systems with dual processors, it is important to consider the additional power burdens and signal integrity issues of supporting multiple loads on a high speed bus. The Pentium® II or Deschutes Processor card supports both uni-processor and dual processor implementations.

The Pentium® II or Deschutes Processor utilizes Single Edge Contact (S.E.C.) (Figure 1) cartridge packaging technology. The S.E.C. cartridge allows the L2 cache to remain tightly coupled to the processor, while maintaining flexibility when implementing high performance processors into OEM systems. The second level cache is performance optimized and tested at the cartridge level. The S.E.C. cartridge utilizes surface mounted core components and a printed circuit board with an edge finger connection. The S.E.C. cartridge package introduced on the Pentium® II Processor will also be used in future Slot 1 processors.

The S.E.C. cartridge has the following features: a thermal plate, a cover and a PCB with an edge finger connection. The thermal plate allows standardized heatsink attachment or customized thermal solutions. The thermal plate enables a reusable heatsink to minimize fit issues for serviceability, upgradeability and replacement. The full enclosure also protects the surface mount components. The edge finger connection maintains socketability for system configuration. The edge finger connector is denoted as 'Slot 1 connector' in this and other documentation.

The entire enclosed product is called the Pentium® II or Deschutes Processor. The

Back to Top

packaging technology and each of the physical elements of the product are referred to using accurate technical descriptions. This allows clear reference to the products as just a processor. This is the model used in past packaging technologies like PGA, TCP, PQFP, DIP, etc.

S.E.C. Cartridge Terminology

- Pentium® II or Deschutes Processor
  The new enclosed card packaging technology is called a "Single Edge Contact cartridge." This is similar to previous names for packaging technology such as PGA or TCP

- Processor card
  The green PCB (with or without components on it)

- Processor core
  The silicon on the PLGA package on the PCB

- Cover
  The plastic cover on the opposite side from the thermal plate

- Slot 1
  The slot that the S.E.C. cartridge plugs into, just as the Pentium® Pro processor uses Socket 8.

- Retention mechanism
  Formerly 'retention module' the dual posts, etc. that holds the cartridge in place.

- Thermal plate
  The heatsink attachment plate.

- Heat sink supports
  The support pieces that are mounted on the mainboard to provide added support for heatsinks

The L2 cache (TagRAM, PBSRAM) components keep standard industry names.

The Pentium® II or Deschutes Processor is the first product to utilize the S.E.C. cartridge technology and Slot 1 connector. Unless otherwise noted, any references to "Pentium® II Processor,"
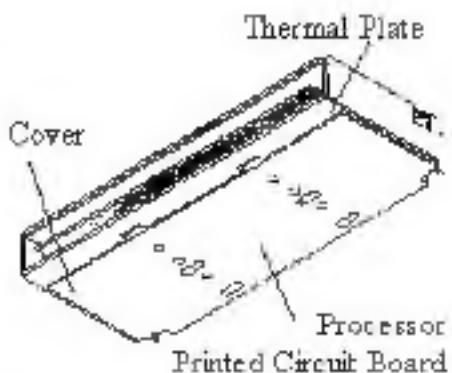
Figure 1: Pentium® II or Deschutes Processor CPU with S.E.C. Cartridge

Back to Top

"Penhum® II or Deschutes Processor/Slot 1 processor" or "Deschutes Processor"
will apply to both the Penhum® II Processor desktop processors.

Accelerated Graphics Port
(AGP or A.G.P.)

Typically, 3D graphics rendering requires a tremendous amount of memory, and
demands ever increasing throughput speed as well. As 3D products for the personal
computer become more and more popular, these demands will only increase. This
will cause a rise in costs for both end users and manufacturers. Lowering these
costs as well as improving performance is the primary motivation behind AGP. By
providing a massive increase in the bandwidth available between the video card and
the processor, it will assist in relieving some of these pressures for quite sometime.

Hardware Monitoring

Hardware monitoring allows you to monitor various aspects of your systems opera-
tions and status. The features include CPU temperature, voltage and RPM of fan.

Back to Top

EP-61BXC-A Form-Factor

The EP-61BXC-A is designed with MicroATX form factor - the new industry standard of chassis. The MicroATX form factor is essentially a Baby-AT baseboard rotated 90 degrees within the chassis enclosure and a new mounting configuration for the power supply. With these changes the processor is relocated away from the expansion slots, allowing them all to hold full length add-in cards. MicroATX defines a double height aperture to the rear of the chassis which can be used to host a wide range of onboard I/O. Only the size and position of this aperture is defined, allowing PC manufacturers to add new I/O features (e.g.; TV input, TV output, joystick, modem, LAN, etc.) to systems. This will help systems integrators differentiate their products in the marketplace, and better meet your needs.

* Smaller size promotes a smaller system size

* I/O shield does not need to be retooled in an ATX 2.01 or later. Mainboard could be used in an ATX 2.01-compliant.

* A smaller power supply cam be used. High integration on mainboard reduces the system costs.
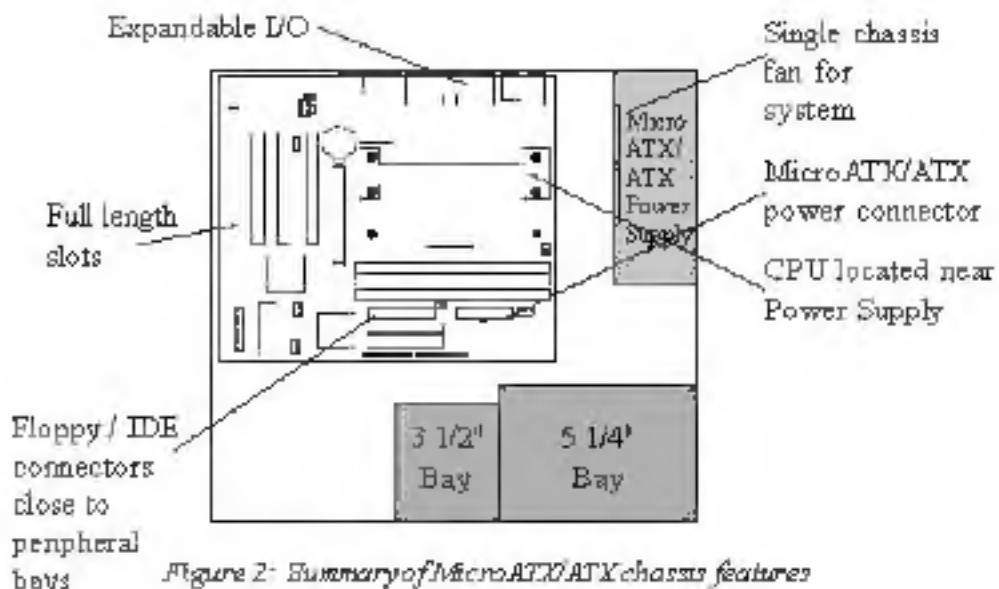
Figure 2: Summary of MicroATX/ATX chassis features

Back to Top

I/O Shield Connector

The EP-61BXC-A is equipped with an I/O back panel. Please use the appropriate I/O shield (figure 3).
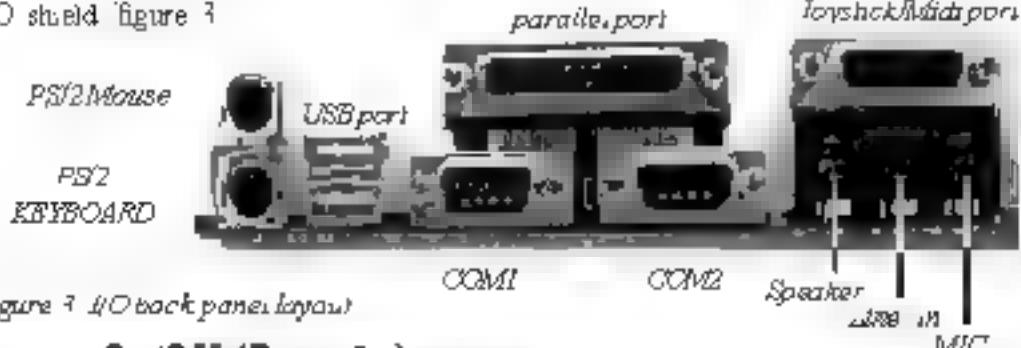
Figure 3 I/O back panel layout

Power-On/Off (Remote)

The EP-61BXC-A has a single 20-pin connector for MicroATX power supplies. For MicroATX/ATX power supplies that support the **Remote On/Off** feature, this should be connected to the systems front panel for system Power On/Off button. The systems power On/Off button should be a momentary button that is normally open.

The EP-61BXC-A has been designed with "Soft Off" functions. You can turn Off the system from one of two sources: The first is the front panel Power On/Off the button, and the other is the "Soft Off" function coming from the EP-61BXA M's onboard circuit controller that can be controlled by the operating system. Windows 95/98 will control this when the user clicks that they are ready to Shutdown the system.
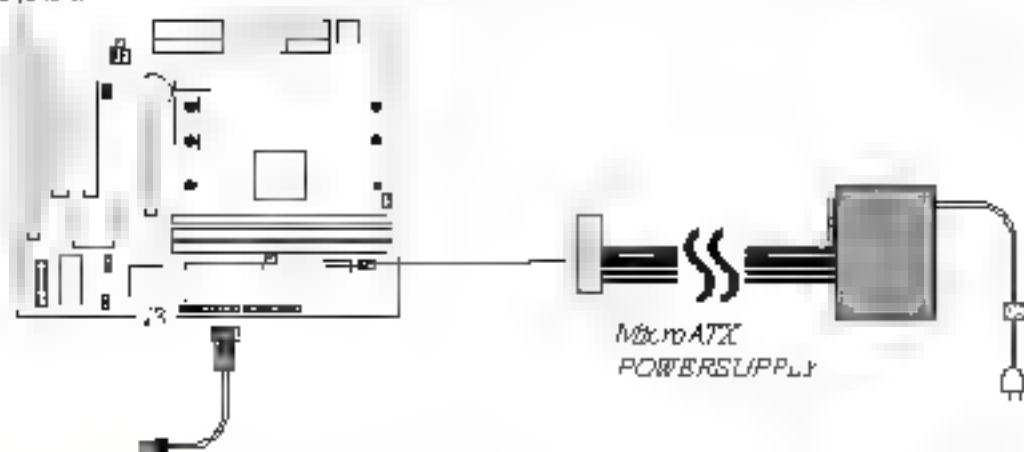
EP-61BXC-A Board
Case (chassis) Power
ON/OFF button

Figure 4 Simple MicroATX/ATX Power
ON/OFF Controller

Back to top

System Block Diagram
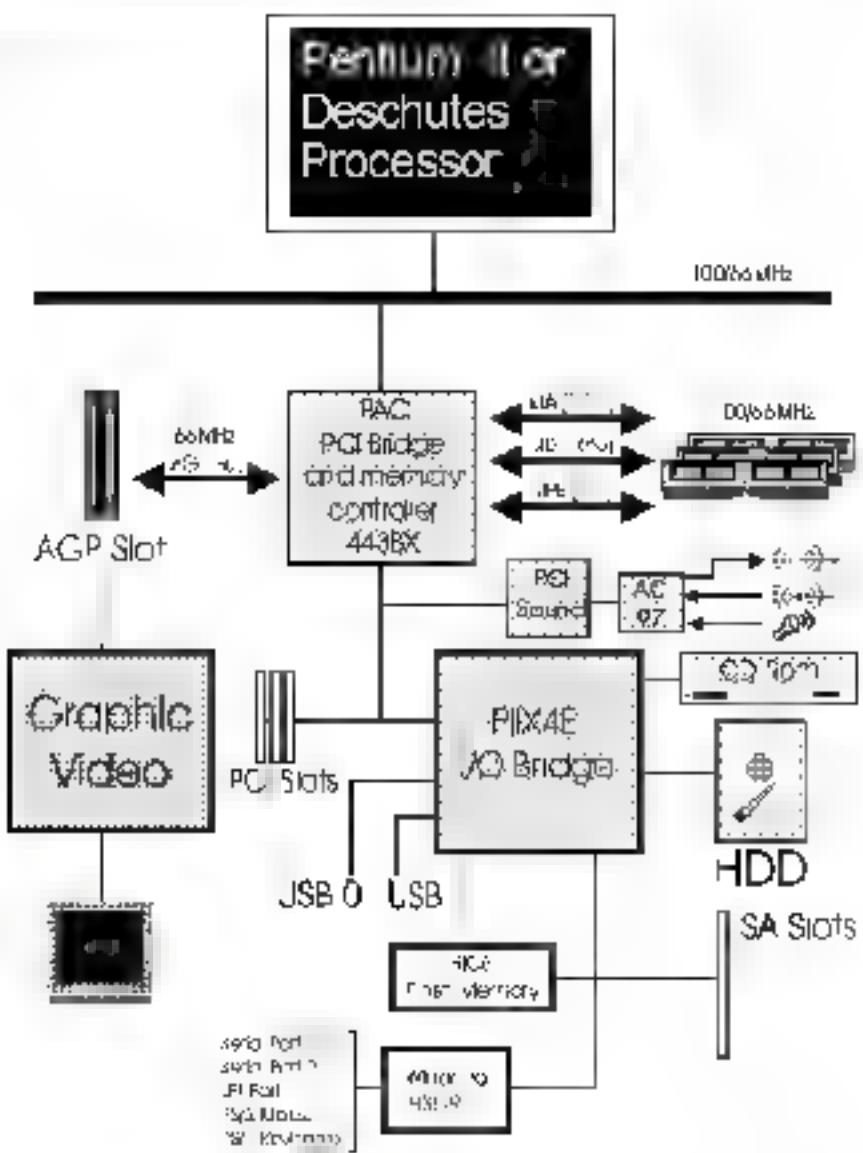
Figure 1 System Block Diagram

Section 2
FEATURES

EP-61BXC-A Features:

* EP-61BXC-A is based on the Pentium® II or Deschutes Processor operating at 233 - 333MHz (66MHz) or 300 - 450MHz (100MHz) on Slot 1. The board is configured by an Easy-Setting Dual Jumper (E.S.D.J.) to match your CPU clock speed.

* Designed with Intel's 82443 BX AGPset

* Supports up to 768 Mega of DRAM (minimum of 16 MB) on board. You can use 168-pin DIMM x 3. It will automatically detect Extended Data Output (EDO) DRAM at 66MHz only or Synchronous DRAM memory (SDRAM) at 66MHz or 100MHz (please see Section 3-2)

* EP-61BXC-A will support Error Checking and Correcting (ECC) when using parity DRAM memory modules. This will detect multiple bit errors and correct 1-bit memory errors.

* Supports (1) 16-bit ISA slots, (3) 32-bit PCI slots, (1) AGP slot and provides (2) independent high performance PCI IDE interfaces capable of supporting PIO Mode 3/4 and Ultra DMA 33 devices. The EP-6 BXC-A supports (3) PCI Bus Master slots and a jumperless PCI INT# control scheme which reduces configuration confusion when plugging in PCI cards.

* Supports ATAPI (e.g. CD-ROM) devices on both Primary and Secondary IDE interfaces.

* Designed with Winbond W83977TF/EF Multi I/O: (1) floppy port, (1) parallel port (EPP, ECP), and (2) serial ports (6550 Fast UART)
  Note: Japanese "Floppy 3 mode" is also supported.

* Includes a PS/2 mouse connector

* Allows use of a PS/2 keyboard

* Features Award Plug & Play BIOS. With Flash Memory you can always upgrade to the current BIOS as they are released. (http://www.epox.com please visit our Technical Support section for the latest updates)

Back to Top

- EP 61BXC A utilizes a Lithium battery which provides environmental protection and longer battery life

- Supports the Universal Serial Bus (USB) connector. The onboard PID64E chip provides the means for connecting PC peripherals such as keyboards, joysticks, telephones, and modems

- Built-in ATX 20-pin power supply connector

- Software power down when using Windows® 95

- Supports ring in feature, remote power on through external modem allow system to be turned on remotely

- Resume by Alarm - Allow your system to turn on at a preselected time

- Power Loss Recovery - In the event of a power outage your system will automatically turn itself back on without user intervention

- Supports CPU Hardware sleep and SMM (System Management) Mode

- Supports Desktop Management Interface (DMI) facilitating the management of desktop computers hardware and software components and peripherals whether they are stand-alone systems or linked into networks (optional)

- Supports Hot Key, Any key or password Keyboard power ON function (KBPO)

- Supports USDM software to offer motherboard various status on Windows® 95/98 or Windows® NT 4.0/5.0

- Supports the CPU PWR and Chassis fan Auto stop in the sleep mode

- Supports the System Power LED (PANEL) blinks in the sleep mode

- Built-in WOL (Wake On Lan) Connector

- Built-in YAMAHA YMF724 PCI Sound Onboard

- True Full Duplex playback and Capture with different Sampling Rate

- Maximum 64 voice XG capable Wave table

- Synthesizer including GM Compatibility

- Supports OPL3, Sound Blaster Pro, MPU401 UART mode and Joystick function

Back to Top

Section 3
INSTALLATION

Back to p
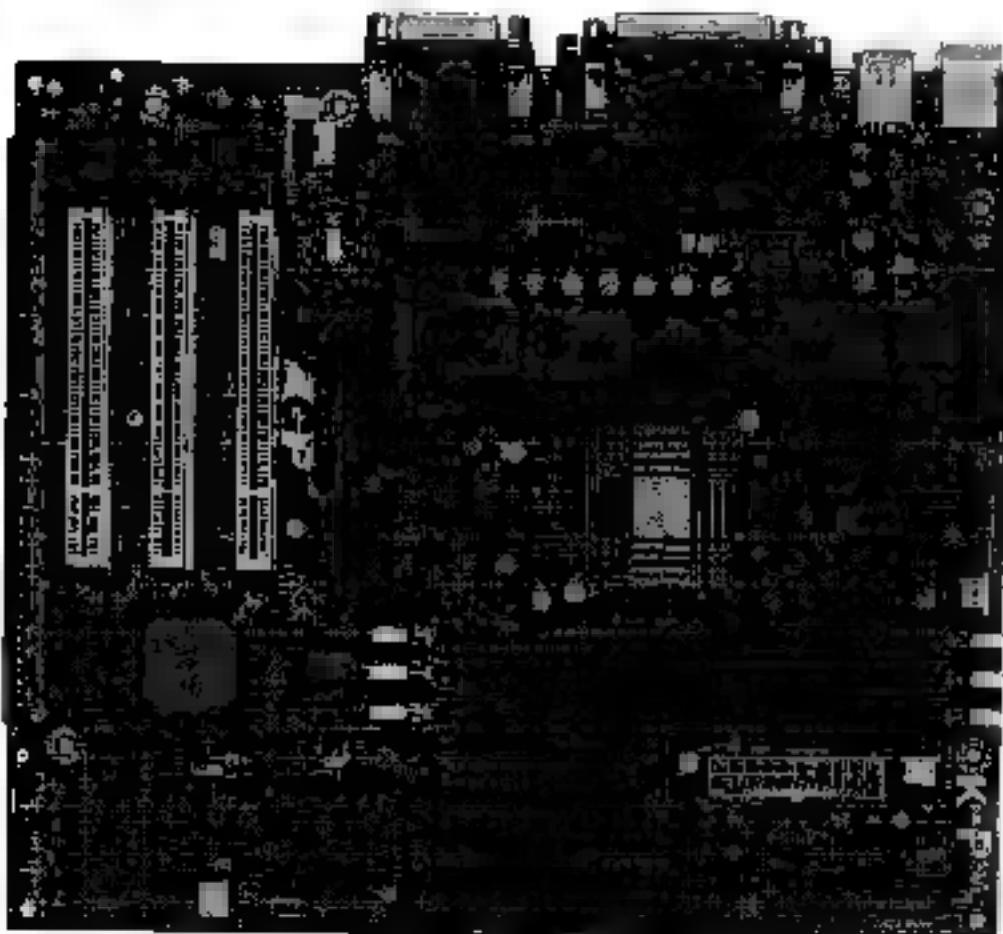
EP-61BXC-A Detailed Layout

Figure 6

Back to top
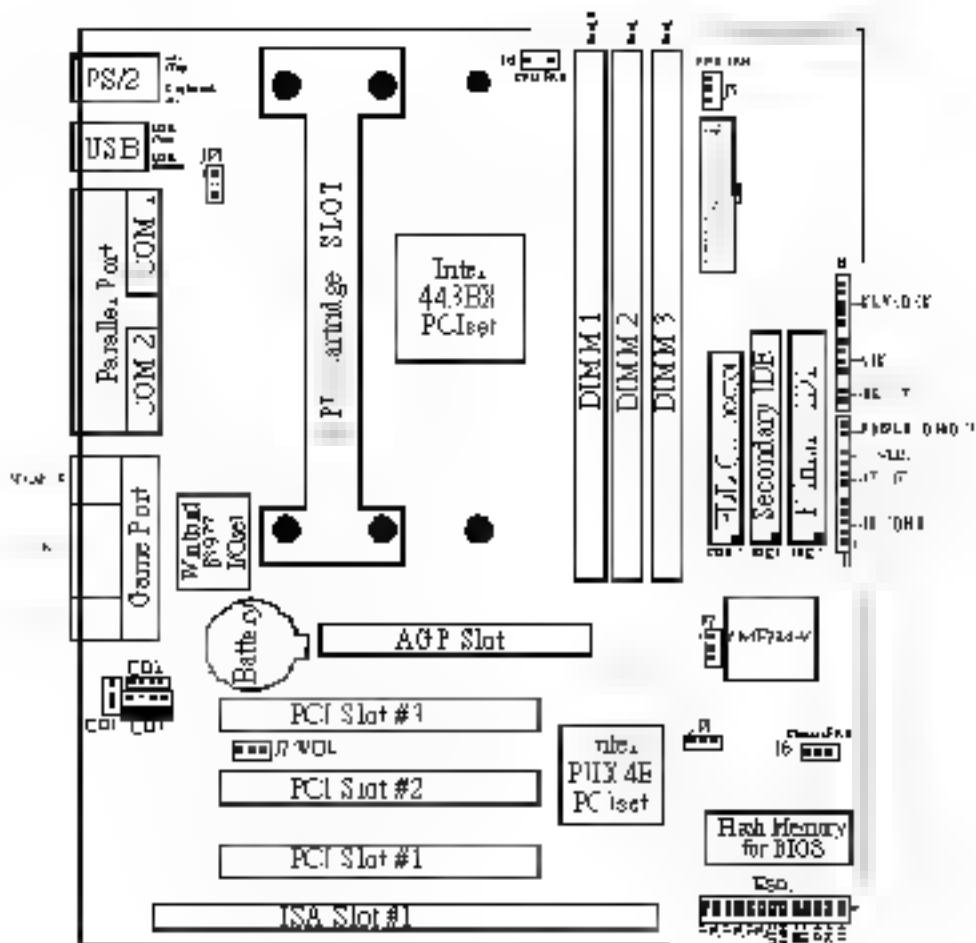
Easy Installation Procedure

Easy Installation Procedure

The following must be completed before powering on your new system.

> 3-1.   Configure Jumpers to match your hardware
> 3-2.   Install memory chips
> 3-3.   Install Pentium II or Deschutes Processor
> 3-4.   Device Connectors

Section 3-1
Configure Jumpers

EPoX designs all motherboards with the fewest jumpers to make your installation fast and easy.

The following will describe all of the jumpers that you are required to set before moving on to step 3-2.

> *Note: The jumpers as depicted as shown (Figure 6) in their correct physical orientation.*

JP1   CMOS Clear
                JP1   =   1-2   Run Mode (Default)
                       =   2-3   Clear CMOS (momentarily)

JP7   PCI Sound (Onboard Sound Chip)
                JP7   =   1-2   Enabled PCI Sound (Default)
                       =   2-3   Disabled PCI Sound

JP13   Keyboard Power-ON function (refer to the section 3-5)
                JP13   1-2   Enabled
                       =   2-3   Disabled(Default)

J7   WOL (Wake On Lan) Connector
                Reserved for NIC (Network Interface Card) to
                Wake the System

Back to TOP

	66MHz	100MHz
		450MHz *
OUT	None	
AGP Bus clock		
PCI Bus clock		

do System will automatically detect CPU Bus clock at the 66MHz or 100MHz for the Pentium® II processor

* RSD: Reserved
** ESD: Easy-Setting-Dual-component

Note Based on the implementation of Intel 440BX PCIset, EP-61BXC-A is able to provide two host bus frequencies either 66 or 100MHz for Slot1 processor and memory operating The default is set at 100MHz once Pentium® II processor to be mounted onto this mainboard However no matter what kind of Slot1 processor you installed it should come with right memory modules for normal and stable operation For example if you install a Deschutes processor you should use the SDRAM module with 100MHz based or above to match the CPU speed Furthermore one thing you may need to bear in mind before the CPU installation it's anyway our advice to use JP3 and set up right speed of Slot1 processor at any time You may feel like to know about AGP interface which always runs under 66MHz no matter what frequency of processor you installed

Back to Top

Section 3-2
System Memory Configuration

Memory Layout

The EP-6-BXC-A supports (3) 168-pin DIMMs (Dual In-one Memory Module). The DIMMs can be either EDO (Extended Data Out) or SDRAM (Synchronized DRAM).

- **We recommend using SDRAM DIMM can not mixing with EDO DIMM modules together at 66MHz**

- The EDO DIMM only support pentium® II Processor at 66MHz. not support Deschutes Processor at 100MHz

- 256MB only Support Registered synchronous DRAM Memory Modules. The Registered SDRAM DIMM do not mix with SDRAM DIMM modules together.

- We recommend when installed the 100MHz Deschutes Processor using DIMM SDRAM must be 125MHz (8ns) bus speed. If used 100MHz (10ns) SDRAM may be critical timing for the motherboard

- About the "PC 100 SDRAM spec." information you may visit Intel's home page at
  http://developer.intel.com/design/pmsets/memory/index.htm

- DIMM SDRAM may be 83MHz (12ns), 100MHz (10ns) or 125MHz (8ns) bus speed

Figure 2 and Table 1 show several possible memory configurations using

DIMM 1 (M1)	Bank 0
DIMM 2 (M2)	Bank 1
DIMM 3 (M3)	Bank 2

Synchronous SDRAM or EDO DIMM

Figure 2

Total Memory	DIMM 1 (Bank 0)	DIMM 2 (Bank 1)	DIMM 3 (Bank 2)
8MB Maximum	EDO/SDRAM 8MB 8MB 3MB 64MB 8MB 7 8MB	EDO/SDRAM 8MB 8MB 3MB 64MB 78MB 7 8MB	EDO/SDRAM 8MB 8MB 7MB 64MB 8MB 8MB
7MB Maximum	EDO/SDRAM 8MB 8MB 3MB 64MB 8MB 256MB	EDO/SDRAM 8MB 8MB 7MB 64MB 78MB 7 8MB	None
8MB Maximum	EDO/SDRAM 8MB 8MB 3MB 64MB 8MB 7 8MB	None	None

Table 7

* SDRAM only supports 8, 16, 32, 64, 128MB DIMM modules. 256MB only supports Registered Synchronous DRAM Memory Modules.

* EDO only supports Pentium® II Processor at 66MHz, not supports Deschutes Processor at 100MHz

DIMM Module Installation

Figure 7 displays the notch marks and what they should look like on your DIMM memory module

DIMMs have 168-pins and two notches that will match with the onboard DIMM socket. DIMM modules are installed by placing the chip firmly into the socket at a 90 degree angle and pressing straight down (figure 8) until it fits tightly into the DIMM socket (figure 9)

LEFT KEY ZONE
(UNBUFFERED)

CENTER KEY ZONE
(3.3 V DRAM)

Figure 7

Back to Top
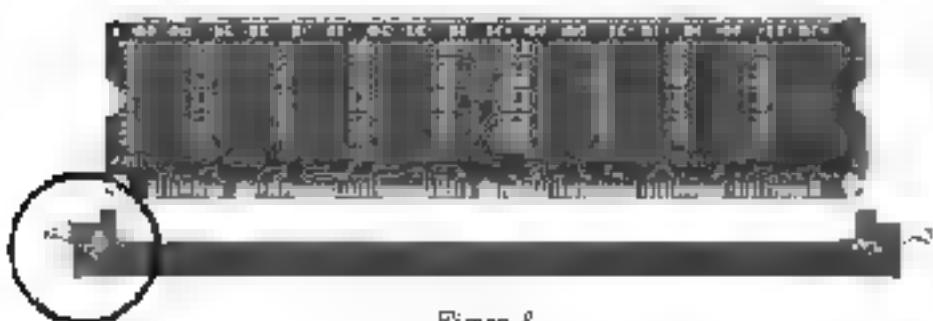
Figure 8

DIMM Module clip before installation
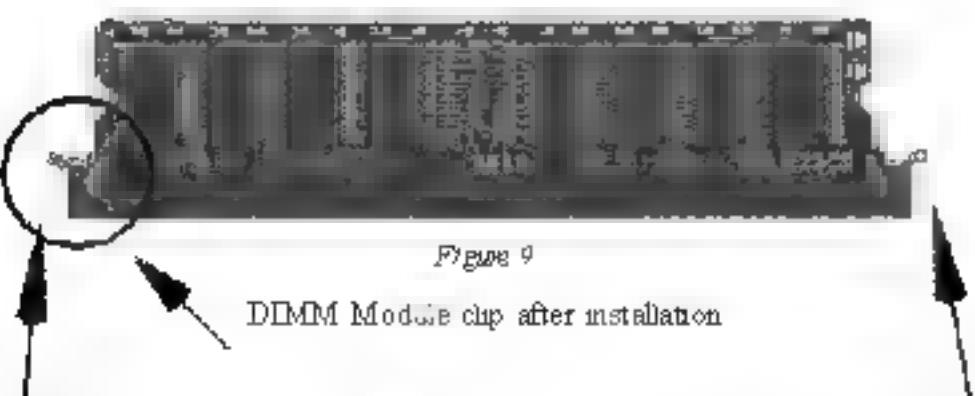
Figure 9

DIMM Module clip after installation

To remove the DIMM module simply press down both of the white clips on either side and the module will be released from the socket

Back to Top

Section 3-3
Installing a Pentium II or Deschutes Processor

The EP-61BXC-A uses the Single Edge Contact (SEC) slot for a Pentium II processor packaged in an SEC cartridge. The SEC slot is not compatible with other non-Pentium II processors.

Please have ready the following list of components so that we may install the processor onto the motherboard.

    1.   Heatsink support 'top/bottom piece
    2   Pentium II processor heat sink
    3   Intel Pentium II Processor

OK now that you have all of your components ready we can start

❶ First, please refer to figure 10 below and follow the direction to lift up the fixed foldable pentium® II Retention Mechanism. This pre-installed device is designed for you to install Pentium® II CPU more easier and to avoide any damage on the board due to overtightening the four screws

● One thing must be kept in your mind that please make sure to lift upright the foldable parts of the Retention module to fit and install CPU properly

Figure 10

Now we are going to install the heatsink support base piece (figure   ) onto the motherboard. There is both a large and small hole figure 12, so that the base will only fit in one direction. This piece needs to be pushed into the holes firmly until it is seated.

Now we are ready to install the SEC Cartridge (Pentium II Processor) into the Retention Module. The SEC Cartridge is mounted by sliding the SEC Cartridge into the Retention Module and letting it slide all the way down. Once it reaches the

Back to Top

bottom make sure you press firmly on SEC cartridge to firmly secure into the Slot Socket

Now we need to secure the heatsink with the top half of the support (figure 13) Take the top piece of the support and slide it into the bottom fin (figure 13 on the heatsink and then push forward until it clips into the bottom base figure 11 that is already there (figure 13

Figure 11

Figure 12 shows the layout of Slot 1 and the holes for mounting the Heatsink base piece

CPU Cartridge SLOT

Motherboard

Layout
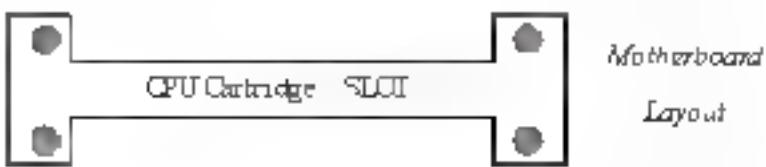
Large Hole for Heat Sink Base   Small Hole for Heat Sink Base

Figure 12
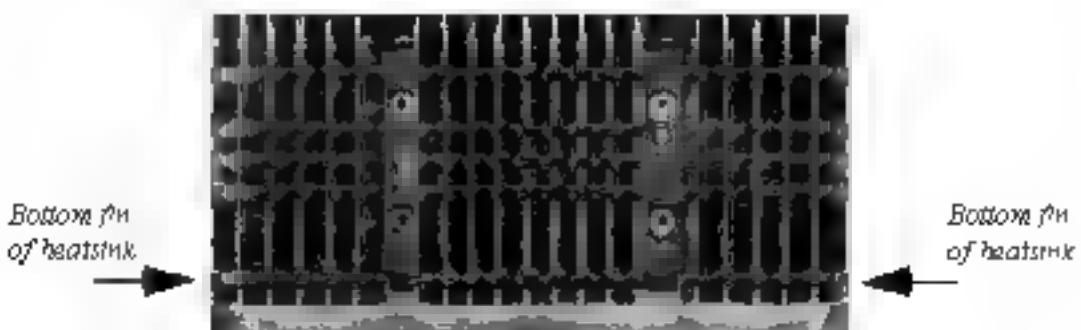
Bottom fin of heatsink   Bottom fin of heatsink

Top half of the support

Figure 13

Back to Top

Section 3-4
Device Connectors

Please install the motherboard into the chassis.

Now that your motherboard is installed you are ready to connect all your connections (figure 14
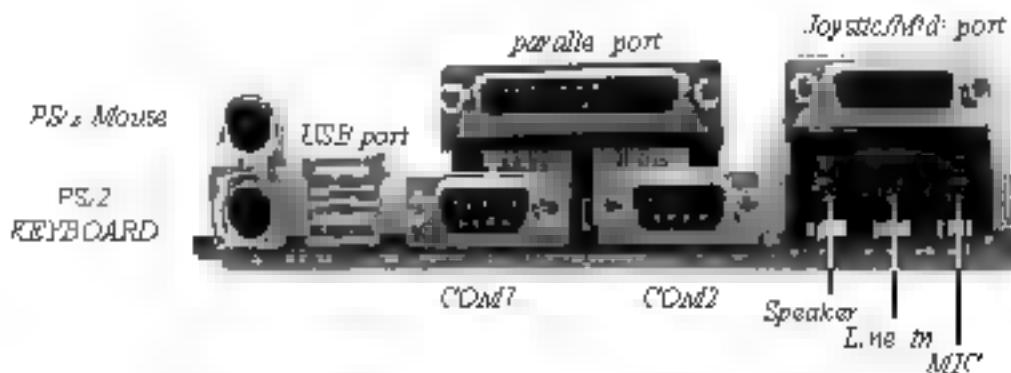
Figure 14

J4 CPU Fan Power
- A plug in for the CPU Fan Power

J5 Power Supply Fan Monitoring
- A plug in for the Power supply so that BIOS can monitor the RPM s

J6 Chassis Fan Power
- A plug in for the chassis Fan Power

J7 WOL (Wake On Lan. Connector

PW2 ATX Power Connector
- 20 pin power connector

J2, J3 Chassis Panel Connector
- Keylock Speaker Reset Sleep Turbo LED and HDD LED

IDE1 Primary IDE Connector

IDE2 Secondary IDE Connector

FDD1 Floppy Controller Connector

Back to Top

Section 3-4
Device Connectors (continued)

J2   ▪ 1   **Reset**   Closed to restart system
      ▪

      ▪   **Speaker**   Connect to the system s speaker for beeping
      ▪   1 Speaker   3 GND
      ▪   2 N/C   4 GND
      ▪

      ▪   **KeyLock**   Keyboard lock switch & Power LED connector
      ▪   1 Power LED(+   4 Keylock
      ▪   2 N/C   5 GND
      ▪   3 GND   * The power LED lights when the
      ▪   system is powered on and blinks in
                                           SLEEP MODE (Suspend mode

J3   ▪ 1   **IR Connector**
      ▪   1 VCC   4 GND
      ▪   2 NC   5 IRTX
      ▪   3 IRRX
      ▪

+   ▪   **IDE LED indicator**   LED ON when Onboard PCI IDE Hard disks is
      ▪   activate
+   ▪   **Turbo LED indicator**   LED ON when higher speed is selected
      ▪

      ▪   **Power On/Off**   This is connected to the power button on the case
      ▪   Using the Soft Off by Pwr BTTN feature. you can choose either Instant
             Off (turns system off immediatly . or 4 sec delay (you need to hold the
             button down for 4 seconds before the system turns off) When the
             system is in 4 sec delay mode. there is a special feature to make the
             system to go into suspend mode when the button is pressed
             momentarily

Section 3-5
External Modem Ring-in Power
ON and Keyboard Power ON
Functions (KBPO)

On the basis of bounded functions in I/O chipset, the two serial ports are able to support the External Modem Ring-in Power ON function. Once users connect the external modem to COM1 or COM2 the EP 61BXC A mainboard allows users to turn on their system through the remote and host's dial-up control.

Exclusive Keyboard Power ON Function

To innovate a unique feature to benefit users, we devoted the easiest and most convenient way to turn on your system based on the the ATX power supply.

How to work with it

Step 1 Please check JP13 at the position 1-2 after you finished the system installation.

JP13 ☐ *Keyboard Power-ON Function Selection*
      ☐ *1-2 Enabled*
      ☐ *2-3 Disabled (Default)*

Step 2. Push the momentary switch (J3 PW ON) to turn on your system and then push again to hold for more than 4 seconds to turn it off affter counting memory as soon as you turn it on.

Step 3 You can enjoy the Keyboard Power ON function (KBPO) by *pressing any key. Hot key (Ctrl-F1 F2 F12) Password A maximum of 5 characters can be entered. and BUTTON only to turn on your system. Please refer to the BIOS Integrated peripherals setup for detail (Page 4 23). The BIOS Default is keyboard Hot key <Ctrl> <F1> to turn on the system* Your system will be turned on automatically after releasing the keys. To power off you system, you can use the Soft OFF function under Windows 95

Back to Top

Notes:

1. Intel ATX version 2.0 specification has recommended you use the power supply with 0.72A(720mA) in 5.0VSB. With our EP-61BXC-A mainboard, the 5.0VSB standby power only has to be >= 0.1A

(100mA) then you can enjoy this unique benefit. However, the ATX power supply which is < 0.1 (100mA) is still appurable to your system by placed TP13 at the position 2-3 to disable this feature.

Section 4
AWARD BIOS SETUP

BIOS Instructions

Award's ROM BIOS provides a built-in Setup program which allows user to modify the basic system configuration and hardware parameters. The modified data will be stored in a battery-backed CMOS, so that data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM will stay unchanged unless there is a configuration change in the system, such as hard drive replacement or a device is added.

It is possible for the CMOS battery to fail, this will cause data loss in the CMOS only. If this does happen you will need to reconfigure your BIOS settings.

To enter the Setup Program

Power on the computer and press the <Del> key immediately, this will bring you into the BIOS CMOS SETUP UTILITY

```
                    ROM PCI/ISA BIOS (2A69KPA9)
                        CMOS SETUP UTILITY
                      AWARD SOFTWARE, INC

    STANDARD CMOS SETUP            SUPERVISOR PASSWORD
    BIOS FEATURES SETUP            USER PASSWORD
    CHIPSET FEATURES SETUP         IDE HDD AUTO DETECTION
    POWER MANAGEMENT SETUP         HDD LOW LEVEL FORMAT
    PNP/PCI CONFIGURATION          SAVE & EXIT SETUP
    INTEGRATED PERIPHERALS         EXIT WITHOUT SAVING
    LOAD SETUP DEFAULTS

    ESC  QUIT                 ↑ ↓ ← →    SELECT ITEM
    F10  Save & Exit Setup    Shift)F2   Change Color

                Time, Date, Hard Disk Type
```

Figure 1   CMOS Setup Utility

Back to Top

The menu displays all the major selection items. Select the item you need to reconfigure. The selection is made by moving the cursor (press any direction key) to the item and pressing the 'Enter' key. An on-line help message is displayed at the bottom of the screen as the cursor is moved to various items which provides a better understanding of each function. When a selection is made, the menu of the selected item will appear so that the user can modify associated configuration parameters.

4-1 Standard CMOS Setup

Choose "Standard CMOS Setup" in the CMOS SETUP UTILITY Menu (Figure 2). The Standard CMOS Setup allows the user to configure system settings such as the current date and time, type of hard disk drive installed, floppy drive type, and display type. Memory size is auto-detected by the BIOS and displayed for your reference. When a field is highlighted (use direction keys to move the cursor and the <Enter> key to select), the entries in the field can be changed by pressing the <PgDn> or the <PgUp> key.

```
                    ROM PC/ISA BIOS(2A69KPA9)
                      STANDARD CMOS SETUP
                      AWARD SOFTWARE, INC

   Date (mm:dd:yy)    Wed  Apr  7 1996
   Time (hh:mm:ss)     14   30   :0

   HARD DISKS      TYPE   SIZE   CYLS    HEAD   PRECOMP   LANDZONE   SECTORS   MODE
   Primary Master   Auto    0      0       0        0         0         0      Auto
   Primary Slave    Auto    0      0       0        0         0         0      Auto
   Secondary Master Auto    0      0       0        0         0         0      Auto
   Secondary Slave  Auto    0      0       0        0         0         0      Auto

   Drive A    1.44M 3.5 in
   Drive B    None                   Base Memory          640K
   Floppy 3 Mode Support  Disabled   Extended Memory     3 744K
   Video      EGA/VGA                Other Memory         384K
   Halt On    All Errors
                                     Total Memory        32768K

   ESC   Quit         ↑ ↓ → ←   Select Item        PU/PD/+/-   Modify
   F1    Help         (Shift) F2  Change Color
```

Figure 2   Standard CMOS Setup

NOTE: *If the hard disk Primary Master/Slave and Secondary Master/Slave are set to Auto, then the hard disk size and model will be auto-detected.*

Back to Top

NOTE The "Halt On " field is used to determine when to halt the system by the BIOS if an error occurs.
NOTE: Floppy 3 Mode support is a mode used to support a special 3 5"
drive used in Japan. This is a 3.5" disk that stores only 1 2 MB, the defa
setting for this is disabled

4-2 BIOS Features Setup

Selecting the "BIOS FEATURES SETUP" option in the CMOS SETUP UTILIT menu allows users to change system related parameters in the displayed menu. Th menu shows all of the manufacturer s default values for the EP-61BXC-A

Pressing the [F1 key will display a help message for the selected item

```
                    ROM PCI/ISA BIOS(1A69KPA9)
                       BIOS FEATURES SETUP
                     AWARD SOFTWARE INC
```

Virus Warning	Disabled	Video BIOS	Shadow		Enabled
CPU Internal Cache	Enabled	C8000-CBFFF	Shadow		Disabled
External Cache	Enabled	CC000-CFFFF	Shadow		Disabled
Quick Power On Self Test	Enabled	D0000-D3FFF	Shadow		Disabled
Boot Sequence	A, C SCSI	D4000-D7FFF	Shadow		Disabled
Swap Floppy Drive	Disabled	D8000-DBFFF	Shadow		Disabled
Boot Up Floppy Seek	Enabled	DC000-DFFFF	Shadow		Disabled
Boot Up Numlock Status	On				
Boot UP System Speed	High				
Gate A20 option	Fast				
Typematic Rate Setting	Disabled				
Typematic Rate (Chars/Sec	6				
Type matic Delay (Msec)	250				
Security Option	Setup				
PCI/VGA Palette Snoop	Disabled	Esc Quit		↑↓→←	Select Item
Assign IRQ for VGA	Enabled	F1 Help		PU/PD/+/-	Modify
OS Select For DRAM > 64MB	Non OS2	F5 Old Value		(Shift) F2	Color
Report NO FDD For Win 95	NO	F7 Load Setup Defaults			

Figure 1 BIOS Features Setup

Virus Warning During and after the system boots up any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and an erro message will appear

You should then run an anti virus program to locate the virus Keep in mind that th feature protects only the boot sector not the entire hard drive
The default value is Disabled

Back to Top

Enabled Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector
Disabled No warning message will appear when anything attempts to access the boot sector

Note: Many disk diagnostic programs that access the boot sector table can trigger the virus warning message. If you plan to run such a program, we recommend that you first disable the virus warning.

CPU Internal Cache This controls the status of the processor's internal cache area
The default is Enabled

Enabled This activates the processor's internal cache thereby increasing performance
Disabled This deactivates the processor's internal cache thereby lowering performance.

External (L2) Cache This controls the status of the external L2 cache area
The default is Enabled

Enabled This activates the motherboard's L2 cache thereby increasing performance.
Disabled This deactivates the motherboard's L2 cache thereby lowering performance.

Quick Power On Self Test This category speeds up the Power On Self Test (POST)
The default is Enabled

Enabled This setting will shorten or skip of the items checked during POST
Disabled Normal POST

Boot Sequence This category determines which drive is searched first by the O/S (Operating System
The default is A,C,SCSI

The following is your list of options:
[A, C, SCSI] [C, A, SCSI] [C, CD-ROM, A] [CD-ROM, C, A]
[D, A,CD-ROM],[E, A, CD-ROM] [F, A, CD-ROM] [SCSI, A, C]
[SCSI, C, A] [C Only]

Swap Floppy Drive This will swap your physical drive letters A & B if you are using two floppy disks.
The default is Disabled.

> *Enabled*: Floppy A & B will be swapped under the O/S.
> *Disabled*: Floppy A & B will be not swapped.

Boot Up Floppy Seek During Power-On Self Test (POST), BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. Only 360K type is 40 tracks while 760K, 1.2MB and 1.44MB are all 80 tracks.
The default is Enabled.

> *Enabled*: The BIOS will search the floppy disk drive to determine if it is 40 or 80 tracks.
> *Disabled*: The BIOS will not search for the type of floppy disk drive by track number.
>
> *NOTE: BIOS can not tell the difference between 720K, 1.2MB and 1.44MB drive types as they are all 80 tracks.*

Boot Up NumLock Status This controls the state of the NumLock key when the system boots.
The default is On.

> *On*: The keypad acts as a 10-key pad.
> *Off*: The keypad acts like the cursor keys.

Boot UP System Speed This controls the initial system speed of the computer.
The default is High.

> *High*: This setting sets the computer into a normal operation mode.
> *Low*: This setting sets the computer into a slower operating mode. Some add-in peripherals or old software may require this setting. Using CTRL+ALT+(+) will switch you back into high speed mode.

Gate A20 Option This refers to the way the system addresses memory above 1MB (extended memory).
The default is Fast.

> *Normal*: The A20 signal is controlled by the keyboard controller or chipset hardware.
> *Fast*: The A20 signal is controlled by Port 92 or chipset specific method.

Typematic Rate Setting. This determines the keystrokes repeat rate
The default is Disabled

> **Enabled**. Allows typematic rate and typematic delay programming.
> **Disabled**. The typematic rate and typematic delay will be controlled by the keyboard controller in your system.

Typematic Rate (Chars/Sec). This is the number of characters that will be repeated by a keyboard press
The default is 6

> **6**. 6 characters per second.   **8**. 8 characters per second.
> **10**. 10 characters per second. **12**. 12 characters per second.
> **15**. 15 characters per second. **20**. 20 characters per second.
> **24**. 24 characters per second. **30**. 30 characters per second.

Typematic Delay (msec). This setting controls the time between the first and the second character displayed by typematic auto repeat
The default is 250

> **250**. 250 msec
> **500**. 500 msec
> **750**. 750 msec
> **1000**. 1000 msec.

Security Option. This category allows you to limit access to the System and Setup or just to Setup
The default is Setup

> **System**. The system will not boot and the access to Setup will be denied if the correct password is not entered at the prompt.
> **Setup**. The system will boot, but the access to Setup will be denied if the incorrect password is not entered at the prompt

PCI/VGA Palette Snoop. This field controls the ability of a primary PCI VGA controller to share a common palette (When a snoop write cycles) with an ISA video card
The default is Disabled

> **Enabled**: If an ISA card is connected to a PCI VGA card via the VESA connector, and that ISA card connects to a VGA monitor, then that ISA card uses the RAMDAC of the PCI card.
> **Disabled**. Disables the VGA card Palette Snoop function

Back to Top

Assign IRQ For VGA   This option allows BIOS to assign IRQ for VGA device

> ***Enabled:*** *The system was assigned IRQ for VGA Card.*
> ***Disabled:*** *The system was not assigned IRQ for VGA Card.*

OS Select For DRAM > 64MB   Some operating systems require special handling
Use this option only if your system has greater than 64MB of memory
The default is Non-OS2

> ***OS2***. *Select this if you are running the OS2 operating system with greater than 64MB of RAM*
> ***Non-OS2***. *Select this for all other operating systems and configurations.*

Report No FDD For WIN95   This option allows BIOS to indicate whether WIN95 is with FDD or not The Default value is NO

> *NO   Report No FDD for WIN95.*
> *YES. Report FDD for WIN95*

Video BIOS Shadow   This option allows video BIOS to be copied into RAM
Video Shadowing will increase the video performance of your system
The default is Enabled

> ***Enabled***. *Video shadow is enabled.*
> ***Disabled***. *Video shadow is disabled.*

C8000   CBFFF Shadow
CC000   CFFFF Shadow
D0000   D3FFF Shadow
D4000   D7FFF Shadow
D8000   DBFFF Shadow
DC000   DFFFF Shadow

These categories determine whether ROMs from option cards will be copied into RAM   This will be in 6K byte or 32K byte units. and the size will depend on chipset of the option card

> ***Enabled:*** *Optional shadow is enabled.*
> ***Disabled***. *Optional shadow is disabled.*

4-3 Chipset Features Setup

Choose the "CHIPSET FEATURES SETUP" in the CMOS SETUP UTILITY menu to display following menu.

```
                    ROM PCI/ISA BIOS(2A59IPAB)
                       CHIPSET FEATURES SETUP
                      AWARD SOFTWARE, INC

 Auto Configuration        Enabled    Auto Detect DIMM/PCI Clk        Enabled
 EDO DRAM Timing           60ns       Speed Spectrum Modulated        Enabled
                                      CPU Warning Temperature         60C/140F
 EDO CAS# MA wait state    2          Current cpu Temperature         3 C/82F
 EDO RAS Wait State        2          Current System Temp             3 C/80F
 SDRAM CAS LATENCY Time    3          Current PWR SUP FAN Speed       0 RPM
 DRAM Data Integrity Mode  Non-ECC    Current CPU FAN Speed           4178 RPM
 System BIOS Cacheable     Enabled    Current Chassis FAN Speed       0 RPM
 Video BIOS Cacheable      Enabled    Vcore    3.0 V        Vtt       1.5 V
 Video RAM Cacheable       Enabled    Vio      3.36 v       +5V       4.16 0
 8 Bit I/O Recovery Time              + 2V     +2.28 0      2V        1.90 v
 16 Bit I/O Recovery Time             5V       4.10 V
 Memory Hole At 764-16M    Disabled
 Passive Release           Enabled
 Delayed Transaction       Disabled
 AGP Aperture Size (MB)    64
                                      Esc   Quit              ↑↓→←   Select Item
                                      F1    Help              PU/PD/+/-  Modify
                                      F5    Old Values        Shift F2   Color
                                      F7    Load Setup Defaults
```

Figure 4   Chipset Features Setup

Auto Configuration This selects predetermined optimal values of the chipset parameters

The default is Enabled

> *Enabled* *This enables auto-configuration and provides the option to select predefined timing modes*
>
> *Disabled* *This allows the user to specify DRAM timing parameters.*
>
> *Note: If you exceed the performance characteristics of memory in your system it will result in lockups, crashes and other problematic system operations.*

EDO DRAM Speed Selection This value must correspond to the speed of the DRAM installed in your system

The default is 60ns This item is for EDO DIMM in Pentium® II processor at 66MHz only

Back to Top

> *50ns.   Faster. Burst Wait State. for 50ns EDO DRAM.*
> *60ns.   (Slower) Burst Wait State. for 60ns Fast Page Mode/EDO DRAM.*

EDO CASx# MA Wait State   This allows the option to insert an additional wait state before the assertion of the first CASx# for page hit cycle.
The default is 2.

> *1. Inserts one wait state.*
> *2   Inserts two wait states.*

EDO RASx# Wait State   This allows the option to insert an additional wait state before RAS# is asserted for row misses.

> *1   Inserts one wait state.*
> *2   Inserts two wait states.*

SDRAM CAS Latency Time   This setting defines the CAS timing parameter of the SDRAM in terms of clocks.
The default is 3.

> *2. Provides faster memory performance.*
> *3   Provides better memory compatibility.*

System BIOS Cacheable   This allows you to copy your BIOS code from slow ROM to fast RAM.
The default is Enabled.

> *Enabled.   The option will improve system performance. However if any program writes to this memory area, a system error may result.*
> *Disabled.   System BIOS non-cacheable.*

Video BIOS Cacheable   This option copies the video ROM BIOS to fast RAM C0000h to C7FFFh.
The default is Enabled.

> *Enabled.   Enables the Video BIOS Cacheable to speed up the VGA Performance.*
> *Disabled.   Will not use the Video BIOS Cacheable function.*

Back to Top

Video RAM Cacheable This option allows the CPU to cache read/writes of the video RAM
The default is Enabled

> *Enabled:* This option allows for faster video access.
> *Disabled:* Reduces video performance.

8 Bit I/O Recovery Time This function allows you to set the wait state that is added to an 8 bit ISA instruction originated by the PCI bus
The default is 3

> **NA.** *No wait state*   **8.** *8 wait states*
> **1.** *1 wait states*   **2.** *2 wait states*
> **3.** *3 wait states*   **4.** *4 wait states*
> **5.** *5 wait states*   **6.** *6 wait states*
> **7.** *7 wait states*

16 Bit I/O Recovery Time This function allows you to set the wait state that is added to an 16 bit ISA instruction originated by the PCI bus
The default is 2

> **NA.** *No wait state*   **4.** *4 wait states*
> **3.** *3 wait states*   **2.** *2 wait states*
> **1.** *1 wait states*

Memory Hole at 15M-16M You can reserve this memory area for the use of ISA adaptor ROMs
The default is Disabled

> *Enabled.* This field enables the main memory (15-16MB) to remap to ISA BUS
> *Disabled:* Normal Setting.
>
> *NOTE If this feature is enabled you will not be able to cache this memory segment.*

Passive Release This option allows access from the CPU to PCI bus to be active during passive release Otherwise the arbiter only accepts another PCI master access to local DRAM
The default is Enabled

> *Enabled:* Enabled
> *Disabled.* Disabled

Delayed Transaction — This option allows the chipset to use its embedded 32-bit posted write buffer to support delay transactions cycles.
The default is Disabled.

> **Enabled.** Select enabled to support PCI 2.1 specification.
> **Disabled.** Disabled.

AGP Aperture Size — The amount of system memory that the AGP card is allowed to share.
The default is 64.

> **4.** 4MB of systems memory accessable by the AGP card.
> **8.** 8MB of systems memory accessable by the AGP card.
> **16.** 16MB of systems memory accessable by the AGP card.
> **32.** 32MB of systems memory accessable by the AGP card.
> **64.** 64MB of systems memory accessable by the AGP card.
> **128.** 128MB of systems memory accessable by the AGP card.
> **256.** 256MB of systems memory accessable by the AGP card.

Auto Detect DIMM/PCI Clk — Allows you to stop DIMM/PCI Clock drive when the DIMM site or PCI Slot are not plug. This item may help reduce EMI.
The default is Enabled.

> **Enabled.** Provides unused DIMM PCI to stop.
> **Disabled.** Provides the clock generator always driving.

Spread Spectrum Modulated — Allows you to active the Spread Spectrum Modulation function for reduce EMI (Note: When Enabled the item that performance will be impacted).

The default is Enabled.

> **Enabled.** Provides the Spread Spectrum function from clock generator.
> **Disabled.** NO Spread Spectrum function.

CPU Warning Temperature — This is the temperature that the computer will respond to an overheating CPU.
The default is Disabled.

> **Enabled.** Temperature is monitored on the CPU.
> **Disabled.** This feature is turned off.

Current CPU Temperature — This is the current temperature of the CPU.

Current Power FAN Speed — The current power fan speed in RPMs.

Back to Top

Current CPU FAN Speed: The current CPU fan speed in RPMs

Current Chassis FAN Speed: The current chassis fan speed in RPMs

Vcore: The voltage level of the CPU

Vtt: The voltage level of the CPU's GTL+ Bus

Vio, ±5V, ±12V: The voltage level of the switch power supply

4-4 Power Management Setup

Choose the "POWER MANAGEMENT SETUP" in the CMOS SETUP UTILITY to display the following screen. This menu allows the user to modify the power management parameters and IRQ signals. In general, these parameters should not be changed unless it is absolutely necessary.

ROM PCI/ISA BIOS (2A69PIPAB)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC
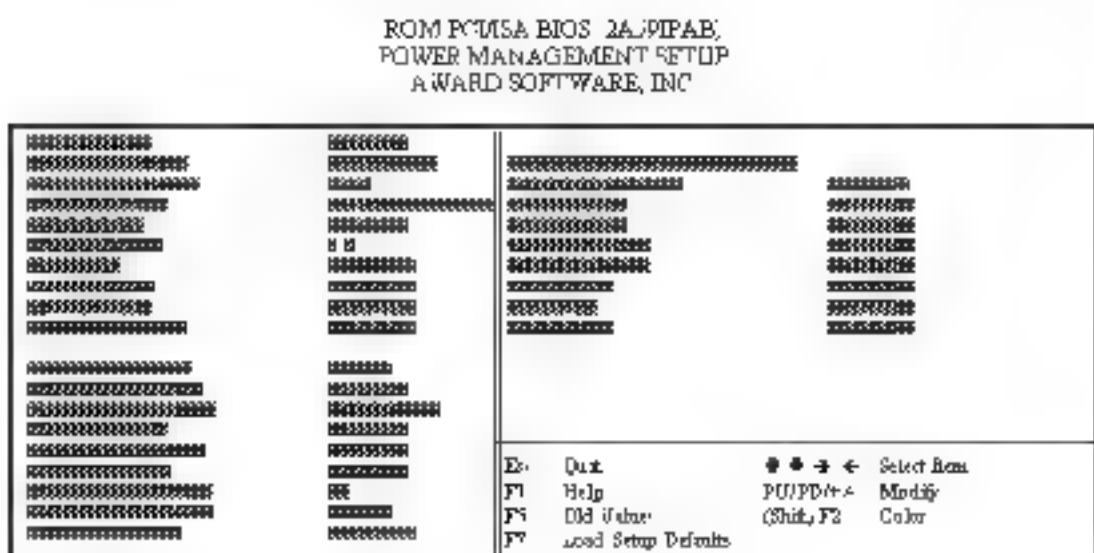
Figure 5   Power Management Setup

You can only change the content of Doze Mode, Standby Mode and Suspend Mode when the Power Management is set to "User Define"

ACPI Function: This option allows you to select ACPI Function.
The default is Enabled.
> *Enabled.*   *Support ACPI function for new O.S*
> *Disabled.*   *No Support ACPI function*

Power Management Use this to select your Power Management selection. The default is User define

> *Disabled*: The system operates in NORMAL conditions (Non-GREEN), and the Power Management function is disabled
> *Max saving*: Maximum power savings. Inactivity period is 1 minute in each mode.
> *Min. saving*: Minimum power savings. Inactivity period is 1 hour in each mode.
> *User define*: Allows user to define PM Timers parameters to control power saving mode.

PM controlled APM This option shows weather or not you want the Power Management to be controlled the Advanced Power Management (APM)
The default is Yes

> *Yes*: APM controls your PM
> *No*: APM does not control your PM

Video Off Method: This option allows you to select how the video will be disabled by the power management
The default is V/H Sync + Blank

> *V/H Sync + Blank*: System turns off vertical and horizontal synchronization ports and writes blanks to the video buffer
> *DPMS*: Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards Association (VESA). Use the software supplied for your video subsystem to select video power management values.
> *Blank Screen*: System only writes blanks to the video buffer

Video Off After Tells you what time frame that the video will be disabled under current power management settings
The default is Standby

> *Standby*: Video powers off after time shown in standby mode setting
> *Doze*: Video powers off after time shown in doze mode setting.
> *Suspend*: Video powers off after time shown in suspend mode setting.
> *N/A*: Video power off not controlled by power management.

Back to Top

MODEM Use IRQ Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system. Default is IRQ 3.

> N/A. No IRQ is used   3- IRQ 3
> 4: IRQ 4   5- IRQ 5
> 7- IRQ 7   9- IRQ 9
> 10- IRQ 10   11- IRQ 11

The EP-61BXC-A supports HDD Power Down, Doze and Standby power saving functions when using the Intel Pentium II Processor.
The default is Disabled.

Doze Mode The "Doze" mode timer starts to count when no "PM events" have occurred.

Standby Mode When the standby mode timer times out, it will enter the standby mode and retain CPU at a slow working speed. The screen will be blanked out.

Suspend Mode This function works only when the Pentium II Processor is installed. The timer starts to count when "System Standby" mode timer is timed out and no "PM Events" are occurring. Valid range is from 1 minute up to 1 hour.

HDD Power Down HDD Standby timer can be set from 1 to 15 minutes.

VGA Active Monitor Use this option if your monitor has advanced power saving features.
The default is Enabled.

> *Enabled*: Your monitor's power features will be included in power management.
> *Disabled*: Your monitor's power features will not be included in power management.

Soft-Off by PWR-BTTN Use this to select your soft-off function.
The default is Delay 4 sec.

> *Instant Off* Turns off the system instantly.
> *Delay 4 Second* Turns off the system after a 4 second delay. If momentary press of button, the system will go into Suspend Mode. Press the power button again to take system out of Suspend Mode.

Resume by Ring This option is used to set the remote ring in feature. This option is only available when Power Loss Recovery is Enabled.
The default is Enabled.

Enabled. The system can use remote ring-in to wake the system up
Disabled: The system cannot use remote ring in to wake the system up

Power Loss Recovery If the power to the system is cut off, the system will turn itself back on with no user intervention.
The default is Disabled.

Enabled. The system will power back on after a power interuption.
Disabled. The system will stay off after a power interuption.

Resume by Alarm This option allows you to have the system turn on at a preset time each day or on a certain day. This option is only available when Power Loss Recovery is Enabled.
The default is Enabled.

Enabled. The system will turn on at the preset time
Disabled: The system can not have this function

Date (of month) Alarm This is how you set the date that the system will turn on.
The default is 0

0 Setting this to 0 will turn the system on everyday at the preset time
1-31 Represents the day of the month that you need the system to turn on.

Time (hh:mm:ss) Alarm. This sets the time that you need the system to turn on.
The deault is 08:00:00

**Reload Global Timer Events **

These options allow the user to reset the global power features timer if any of the enabled events occur.

IRQ [3-7, 9-15], NMI The default is Enable
Primary IDE 0 The default is Disable
Primary IDE 1 The default is Disable
Secondary IDE 0 The default is Disable
Secondary IDE 1 The default is Disable
Floppy Disk The default is Disable
Serial Port The default is Enable
Parallel Port The default is Disable

Back to top

4-5 PNP/PCI Configuration

The PNP/PCI configuration program is for the user to modify the PCI/ISA IRQ signals when various PCI/ISA cards are inserted in the PCI or ISA slots

WARNING: Conflicting IRQ's may cause the system to not find certain devices.

```
                ROM PCI/ISA BIOS(2A69KPA9)
                   PNP/PCI CONFIGURATION
                   AWARD SOFTWARE, INC

IRQ-3      assigned to    Legacy ISA       Used MEM base addr        N/A
IRQ-4      assigned to    Legacy ISA
IRQ-5      assigned to    PCI/ISA PnP      Assign IRQ For USB        Enabled
IRQ-7      assigned to    PCI/ISA PnP
IRQ-9      assigned to    PCI/ISA PnP
IRQ-10     assigned to    PCI/ISA PnP
IRQ-       assigned to    PCI/ISA PnP
IRQ-       assigned to    PCI/ISA PnP
IRQ-14     assigned to    PCI/ISA PnP
IRQ-       assigned to    PCI/ISA PnP
DMA-0      assigned to    PCI/ISA PnP
DMA-      assigned to    PCI/ISA PnP
DMA-3      assigned to    PCI/ISA PnP       Esc   Quit              Select Item
DMA-       assigned to    PCI/ISA PnP       F     Help       PU/PD/+  Modify
DMA-6      assigned to    PCI/ISA PnP       F3    Old Values (Shift)F2 Color
DMA-7      assigned to    PCI/ISA PnP       F     Load Setup Defaults
```

Figure 6   PCI Configuration Setup

PNP OS Installed: Do you have a PNP OS installed on your system. The default is No

    Yes: Select if you are using a PNP OS
    No: Select if your OS does not support PNP

Resources Controlled By: Who controlled the system PNP/PCI resources. The default is Manual.

    Manual. PNP Card's resources will be controlled manually. You can set which IRQ-X and DMA-X are assigned to PCI/ISA PNP or Legacy ISA Cards.
    Auto. If your ISA card and PCI card are all PNP cards, BIOS will assign the interrupt resource automatically.

Reset Configuration Data: This setting allows you to clear ESCD data. The default is Disabled

Back to Top

Disabled: Normal Setting.

Enabled: if you have plugged in some Legacy cards to the system and they were recorded into ESCD (Extended System Configuration Data), you can set this field to Enabled in order to clear ESCD.

PCI IDE IRQ Map To This item allows the user to configure the system for the type of IDE hard disk controller in use. By default, the BIOS assumes that the hard drive controller is an ISA device rather than a PCI controller. If you are using a PCI controller, then you will need to change this to specify which PCI slot has the controller and which PCI interrupt (A, B, C, or D) is associated with the connected IDE devices.

The default value is PCI AUTO. This will allow the system to automatically configure the IDE devices.
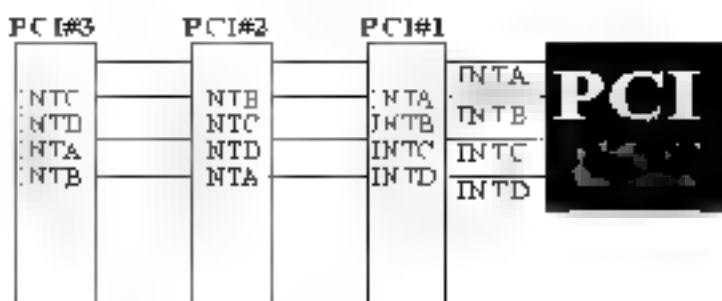

Figure 7: The Combination of PCI INT#lines

Used MEM base addr The Used MEM base addr (CB00, CC00, D000, D400, D800, DC00) and Used MEM Length (8K, 16K, 32K, 64K) are used to support some specific ISA Legacy cards with requested memory space below 1M address. Now with these two functions, users can define where the used memory address is located and its length of the legacy area that is used by the legacy device to avoid the memory space conflict. For example, if you select "D000" for Used MEM base addr" and "16K" for "Used MEM Length", that means the address region D000H - D3FFFH is occupied by ISA legacy cards, and thus BIOS will not assign this region for PnP/ISA and PCI cards.

The default is N/A.

Assign IRQ For USB This item allows BIOS to assign whether IRQ is with USB or not. If you have not connect the USB device. Can release the IRQ for other device.

The default is Enabled

> *Enalbed: Provides IRQ for USB device.*
> *Disabled: Release IRQ for other device.*

4-6 Load Setup Defaults

The "LOAD SETUP DEFAULTS" function loads the system default data directly from ROM and initializes the associated hardware properly. This function will be necessary only when the system CMOS data is corrupted.

4-7 Integrated Peripherals

```
ROM PCI/ISA BIOS(2A69KPA9)
INTEGRATED PERIPHERALS
AWARD SOFTWARE INC

IDE HDD Block Mode         Enabled      Onboard Serial Port 2      Auto
IDE Primary  Master PIO    Auto         Onboard IR Controller      Disabled
IDE Primary  Slave PIO     Auto         Onboard Parallel Port      378/IRQ7
IDE Secondary Master PIO   Auto         Onboard Parallel Mode      ECP  EPP
IDE Secondary Slave PIO    Auto         ECP Mode Use DMA
IDE Primary  Master UDMA   Auto         Parallel Port EPP Type     EPP 1.9
IDE Primary  Slave UDMA    Auto
IDE Secondary Master UDMA  Auto
IDE Secondary Slave UDMA   Auto
Onboard Primary PCI IDE    Enabled
Onboard Secondary PCI IDE  Enabled
USB Keyboard Support       Disabled

POWER ON Method            Hot Key
KB Power ON Password       Enter
Hot Key Power ON           Ctrl-F1      Esc  Quit              ↑↓→←    Select Item
KBC Input Clock            8MHz         F1   Help              PU/PD/+/-  Modify
Onboard FDD Controller     Enabled      F5   Old Values        Shift F2  Color
Onboard Serial Port 1      Auto         F7   Load Setup Defaults
```

Figure 8   Integrated Peripherals

> *Note. If you do not use the Onboard IDE connector, then you will need to set Onboard Primary PCI IDE: Disabled and Onboard Secondary PCI IDE: Disabled*
> *Note. The Onboard PCI IDE cable should be equal to or less than 18 inches (45 cm).*

IDE HDD Block Mode IDE Block Mode allows the controller to access blocks of sectors rather than a single sector at a time.
The default is Enabled

Back to Top

Enabled: Enabled IDE HDD Block Mode. Provides higher HDD transfer rates.
Disabled: Disable IDE HDD Block Mode.

Onboard Primary PCI IDE The default value is Enabled

Enabled. Enables Onboard IDE primary port
Disabled: Disables Onboard IDE primary port

Onboard Secondary PCI IDE
The default is Enabled

Enabled Enables Onboard IDE secondary port.
Disabled: Disables Onboard IDE secondary port

IDE Primary Master PIO
The default is Auto

Auto BIOS will automatically detect the Onboard Primary Master PCI IDE HDD Accessing mode.
Mode 0~4. Manually set the IDE Programmed interrupt mode

IDE Primary Slave PIO
The default is Auto

Auto BIOS will automatically detect the Onboard Primary Slave PCI IDE HDD Accessing mode
Mode 0~4. Manually set the IDE Programmed interrupt mode.

IDE Secondary Master PIO
The default is Auto

Auto. BIOS will automatically detect the Onboard Secondary Master PCI IDE HDD Accessing mode
Mode 0~4. Manually set the IDE Programmed interrupt mode.

IDE Secondary Slave PIO
The default is Auto

Auto BIOS will automatically detect the Onboard Secondary Slave PCI IDE HDD Accessing mode.
Mode 0~4. Manually set the IDE Programmed interrupt mode.

Back to Top

IDE Primary Master UDMA This allows you to select the mode of operation for the hard drive
The default is Auto

> *Auto*. The computer will select the optimal setting.
> *Disabled*: The hard drive will run in normal mode.

IDE Primary Slave UDMA This allows you to select the mode of operation for the hard drive
The default is Auto

> *Auto*. The computer will select the optimal setting.
> *Disabled*: The hard drive will run in normal mode.

IDE Secondary Master UDMA This allows you to select the mode of operation for the hard drive
The default is Auto

> *Auto*. The computer will select the optimal setting.
> *Disabled*. The hard drive will run in normal mode.

IDE Secondary Slave UDMA This allows you to select the mode of operation for the hard drive
The default is Auto

> *Auto*. The computer will select the optimal setting.
> *Disabled*: The hard drive will run in normal mode

USB Keyboard Support This controls the activation status of an optional USB keyboard that may be attached.
The default is disabled

> *Enabled*: Enable USB keyboard support.
> *Disabled*: Disable USB keyboard support.

Power On Method There are "**Button Only**", "**Hot Key**" and "**Any Key**" can be chosen by this field that allows users to select one of these various functions as Power On Method for their requirement
The default value in this selection is "Hot Key" (Ctrl-F1)

> *Hot Key* User can press "**Control Key**" (Ctrl) and "**Function Key**" from F1 to F12, individually to power on the system

The interval between "Ctrl" key and function Key (F, F12) must be short.

Anykey: Press anykey to power on the system.

Button Only: This power on method is controlled by 19 (pw-on). Use Power On Button to power on the system.

Password: User can Power On the System by password, the password can be entered from 1 to 5 characters. The maximum of password is 5 characters.

If user forget lost the password, please go into BIOS setting to change the Power On Method, or keyin another words as password instead of original one.

OnBoard Primary PCI IDE: This option turns on and off the onboard primary IDE. The default is enabled.

    Enabled: This activates the primary PCI IDE.
    Disabled: This disables the primary PCI IDE and frees up the resource

OnBoard Secondary PCI IDE: This option turns on/off the onboard secondary IDE. The default is enabled.

    Enabled: This activates the secondary PCI IDE.
    Disabled: This disables the secondary PCI IDE and frees up its resources.

KBC input clock: This sets the keyboard clock value. The default is 12 MHz.

    Options: 6, 8, 12, 16 are the available choices.

Onboard FDC Controller: This controls the state of the onboard floppy controller. The default value is Enabled.

    Enabled: Enable the Onboard Winbond Chips's floppy drive interface controller.
    Disabled: Disable the Onboard Winbond Chip's floppy drive interface controller.

Onboard Serial Port 1: This field allows the user to configure the 1st serial port. The default is Auto.

    AUTO: Enable Onboard Serial port 1 and address is Auto adjusted.
    COM1: Enable Onboard Serial port 1 and address is 3F8H/IRQ4.
    COM2: Enable Onboard Serial port 1 and address is 2F8H/IRQ3.

Back to Top

COM3: Enable Onboard Serial port 1 and address is 3E8H IRQ4.
COM4: Enable Onboard Serial port 1 and address is 2E8H/IRQ3.
Disabled: Disable Onboard SMC CHIP's Serial port 1

Onboard Serial Port 2: This field allows the user to configure the 2nd serial port
The default is Auto

AUTO: Enable Onboard Serial port 2 and address is Auto adjusted
COM1: Enable Onboard Serial port 2 and address is 3F8H/IRQ4.
COM2: Enable Onboard Serial port 2 and address is 2F8H/IRQ3.
COM3: Enable Onboard Serial port 2 and address is 3E8H IRQ4.
COM4: Enable Onboard Serial port 2 and address is 2E8H IRQ3.
Disabled: Disable Onboard SMC CHIP's Serial port 2

UART Mode Select: The mode of the IR Controller
The default is Normal

IrDA: Support a Serial Infrared Interface IrDA

ASKIR: Support a Sharp Serial Infrared Interface formats

Normal: The IRRX and IRTX pins of IR function in normal condition

Onboard Parallel port: This field allows the user to configure the LPT port
The default is 378H IRQ7

378H: Enable Onboard LPT port and address is 378H and IRQ7.
278H: Enable Onboard LPT port and address is 278H and IRQ5.
3BCH: Enable Onboard LPT port and address is 3BCH and IRQ7
Disabled: Disable Onboard Winbond Chip's LPT port.

Parallel Port Mode: This field allows the user to select the parallel port mode
The default is ECP+EPP

Normal: Standard mode. IBM PC AT Compatible bidirectional parallel port.
EPP: Enhanced Parallel Port mode
ECP: Extended Capabilities Port mode.
EPP+ECP: ECP Mode & EPP Mode

ECP Mode USE DMA: This field allows the user to select DMA1 or DMA3 for
the ECP mode
The default is DMA3

Back to Top

DMA1   *This field selects the routing of DMA1 for the ECP mode.*
DMA3   *This field selects the routing of DMA3 for the ECP mode*

4-8 Change Supervisor or User Password

To change the password, choose the "SUPERVISOR PASSWORD or USER PASSWORD" option from the CMOS SETUP UTILITY menu and press [Enter].

NOTE: Either "Setup" or "System" must be selected in the "Security Option" of the BIOS FEATURES SETUP menu

1. If CMOS is corrupted or the option was not used, a default password stored in the ROM will be used. The screen will display the following message

   Enter Password

   Press the Enter key to continue after the proper password is given

2. If the CMOS is corrupted or the option was used earlier and the user wishes to change the default password, the SETUP UTILITY will display a message and ask for a confirmation

   Confirm Password:

3. After pressing the [Enter] key (ROM password if the option was not used) or current password (user defined password), the user can change the password and store new one in CMOS RAM. A maximum of 8 characters can be entered

4-9 IDE HDD Auto Detection

The "IDE HDD auto detection" utility is a very useful tool, especially when you do not know which kind of hard disk type you are using. You can use this utility to detect the correct disk type installed in the system automatically. But now you can set HARD DISK TYPE to Auto in the STANDARD CMOS SETUP. You don't need the "IDE HDD AUTO DETECTION" utility. The BIOS will Auto detect the hard disk size and model on display during POST.
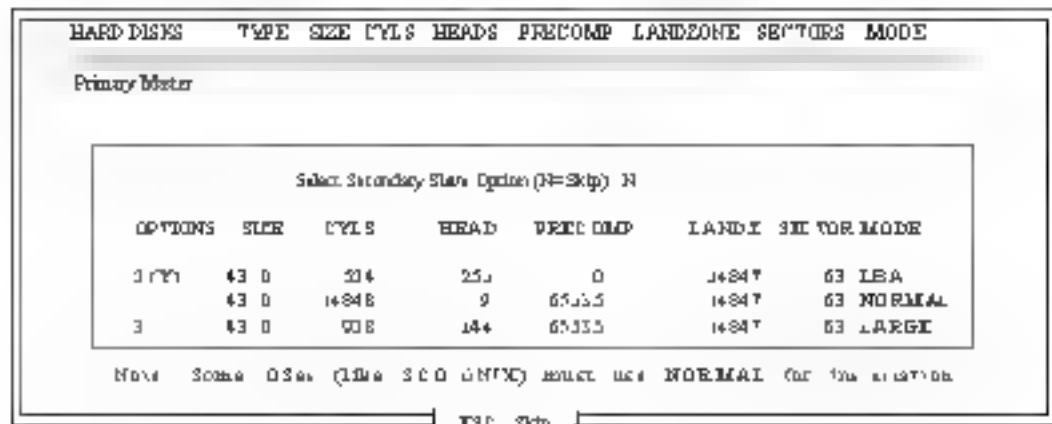
Figure 8   IDE HDD Auto Detection

NOTE: HDD Modes

The Award BIOS supports 3 HDD modes : NORMAL, LBA & LARGE NORMAL mode

Generic access mode in which neither the BIOS nor the IDE controller will make any transformations during accessing.

The maximum number of cylinders, head & sectors for NORMAL mode are

```
      024, 16 & 63
 no  Cylinder          024
 x no  Head            16)
 x no  Sector          63)
 x no. per sector      5.2)
                   5.8 Megabytes
```

Back to Top

If user set his HDD to NORMAL mode, the maximum accessible HDD size will be 528 Megabytes even though its physical size may be greater than that.

LBA (Logical Block Addressing) mode : A new HDD accessing method to overcome the 528 Megabyte bottleneck. The number of cylinders, heads & sectors shown in setup may not be the number physically contained in the HDD. During HDD accessing, the IDE controller will transform the logical address described by sector, head & cylinder into its own physical address inside the HDD. The maximum HDD size supported by LBA mode is 8.4 GigaBytes which is obtained by the following formula.

```
  no. Cylinder          (1024)
x no. Head              255)
x no. Sector            63)
x bytes per sector      512)
                        8.4 GigaBytes
```

LARGE mode : Extended HDD access mode supported by Award Software.

Some IDE HDDs contain more than 1024 cylinder without LBA support (in some cases, user do not want LBA). The Award BIOS provides another alternative to support these kinds of LARGE mode

CYLS	HEADS	SECTOR	MODE
1120	16	59	NORMAL
560	32	59	LARGE

BIOS tricks DOS (or other OS) that the number of cylinders is less than 1024 by dividing it by 2. At the same time, the number of heads is multiplied by 2. A reverse transformation process will be made inside

INT 13h in order to access the right HDD address

Maximum HDD size

```
  no. Cylinder          (1024)
x no. Head              32)
x no. Sector            63)
x bytes per sector      512)
                        GigaByte
```

Back to Top

Note: To support LBA or LARGE mode of HDDs, there must be some software involved. All the software is located in the Award HDD Service Routine (INT 13h). It may fail to access a HDD with LBA (LARGE) mode selected if you are running under an Operating System which replaces the whole INT 13h.

UNIX operating systems do not support either LBA or LARGE and must utilize the Standard mode. UNIX can support drives larger than 528MB.

4-10 HDD Low Level Format

Interleave Select the interleave number of the hard disk drive you wish to perform a low level format on. You may select from 1 to 8. Check the documentation that came with the drive for the correct interleave number, or select 0 for automatic detection.

Auto scan bad track This allows the utility to scan first then format by each track.

Start Press<Y>to start low level format.

4-11 Save & Exit Setup

The "SAVE & EXIT SETUP" option will bring you back to the boot up procedure with all the changes you just recorded in the CMOS RAM.

4-12 Exit Without Saving

The "EXIT WITHOUT SAVING" option will bring you back to normal boot up procedure without saving any data into CMOS RAM.

All old data in the CMOS will not be destroyed.

Back to Top

Section 5
Yamaha PCI Sound

Driver Installation

Installing the DS-XG Device Driver Software for Windows 95/98

1.   Introduction

This guide describes the necessary procedures for installing the DS-XG device driver software for Windows 95/98. The following procedures will be covered in each section.

- Installing the DS-XG Device Driver Software
- Adjusting the DS-XG Mixer Control Settings

In order to properly install the DS-XG device driver to your computer, please follow the sections contained in this guide.

2.   Installing the Driver

① Installinting the Driver installed into Windows 95/98, you will find a Yellow question mark still exits in the other Devices. of the Device Manager of system Properities shown Figure2 1 below. Please don't remove it and then follow the steps below.

Figure 2-1 The Device Manager of System Properties

Back to Top

2) Please insert Manual & Driver CD into CD-ROM device, then select the "Run" from the Windows 95 start menu and enter

"X:\Y724\Win95 & 98 V4.05 1023\Setup.exe"
(X is CD ROM driver location, eg. D: or E:)

3) Follow the Screen instructions to install the program. Click Finish, to Restart your computer

2.1. Verifying the DS-XG Device Driver Installation

This section explains how to verify if the DS-XG device driver and software were installed successfully. To see if the DS-XG device driver has been installed successfully, complete the following steps.

1) Click the **Start** button on the Windows Taskbar
2) Highlight **Settings** and click on the **Control Panel** icon
3) The Control Panel now appears. Double-click the **System** icon.
4) The System Properties window now appears. Click on the **Device Manager** table as shown in Figure2-2 below
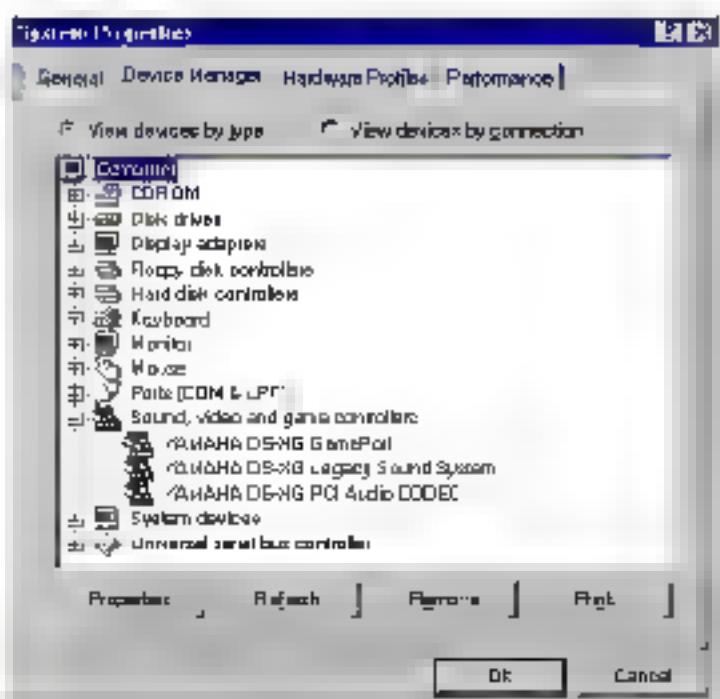
Figure2-2 The system properties for Device Manager

Back to Top

3.   Adjusting the DS-XG Mixer Control Settings

Once all DS-XG device drivers and software are installed, you can use the Windows standard volume control to adjust the volume level of selected audio or recording devices by following the procedures in this section.

3.1.   Adjusting the Volume of Audio Devices

This section explains how to use the Windows standard volume control to adjust the volume of audio devices in your computer.

1.   Click on the Speaker icon located in the bottom rightmost corner of the Windows taskbar.

2.   The DS-XG mixer control starts and the *Volume Control* windows is displayed as shown in Figure 3-1 below.
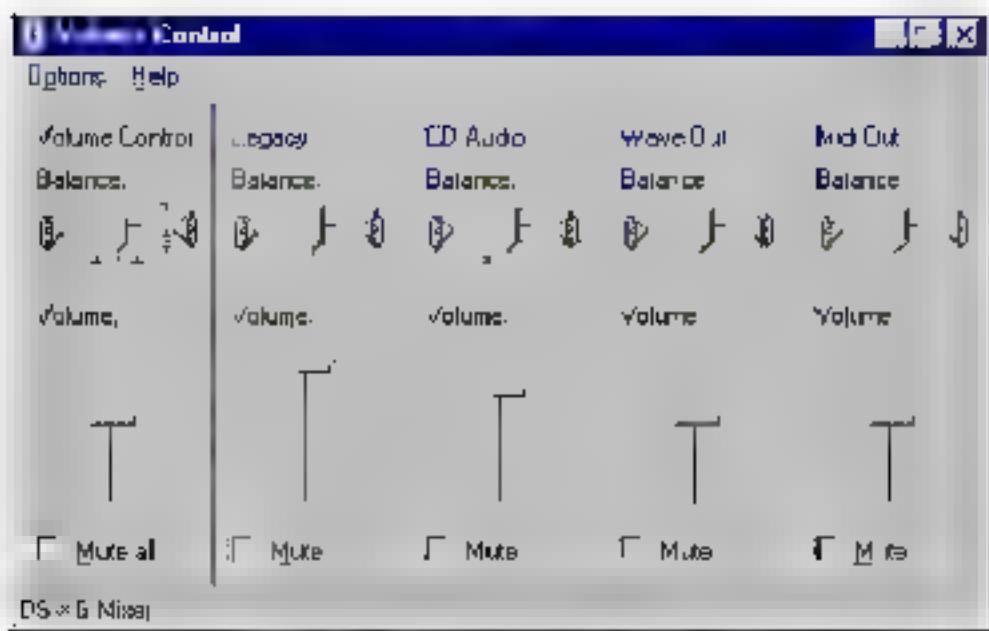

Figure 3-1 The Volume Control Window

3.   *Adjust the volume as desired for each audio device by dragging the slide-bars vertically. You may also click on* **Options** *in the menu bar and then click on* **Properties.**

4)   To access Advanced control of the Microphone device, first click on Mute and then click the Advanced button as shown in Figure 3-2 below.
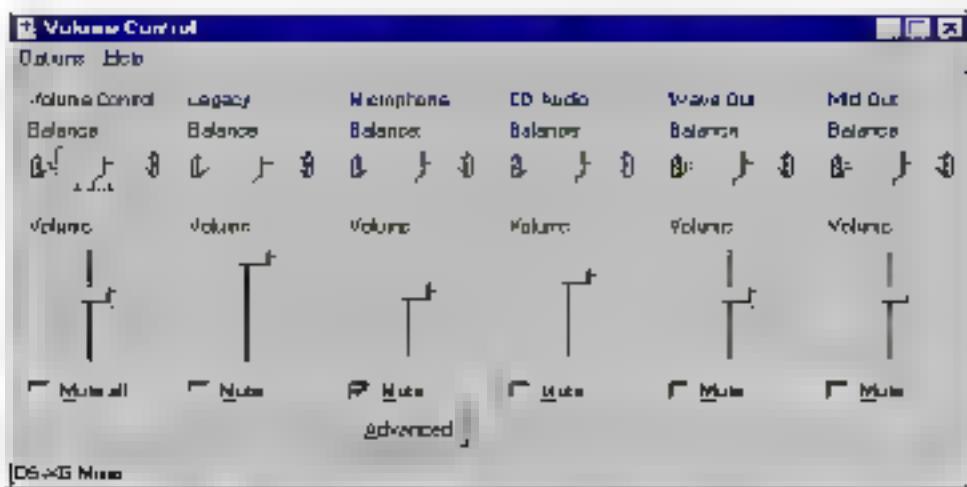

Figure 3-2 The Volume Control window

5)   The Advanced Control for Microphone window will now appear as shown in Figure 3-3 below. Adjust the Bass and Treble as desired by dragging the slide-bars horizontally. If you wish to enable the Mic20dB setting for your microphone, then click on Mic20dB Enable
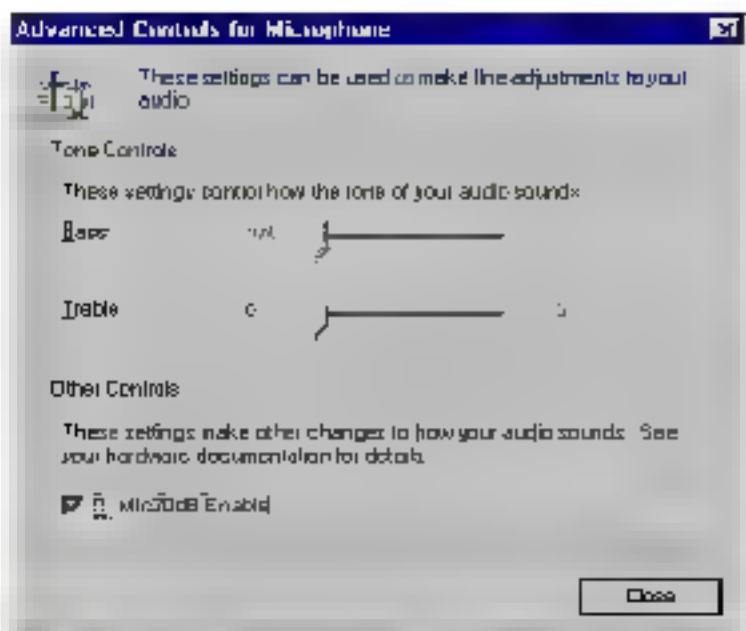

Figure 3-3 The Advance Controls for Microphone Windows

Back to p

3.2. Adjusting the Volume of Recording Devices

This section explains how to use the Windows standard volume control to adjust the volume of recording devices in your computer.

> The procedures in this section assume that the DS-XG Mixer is already started and the *Volume Control* window is already displayed. If this is not the case, refer to Section 3.1 for the necessary steps to reach this stage.

1   To access the volume control for recording device, click on **Options** in the menu bar and then click on **Properties**.

2.   Click on **Recording**. The *Recording Control* window will now appear as shown in Figure 3-4 below.
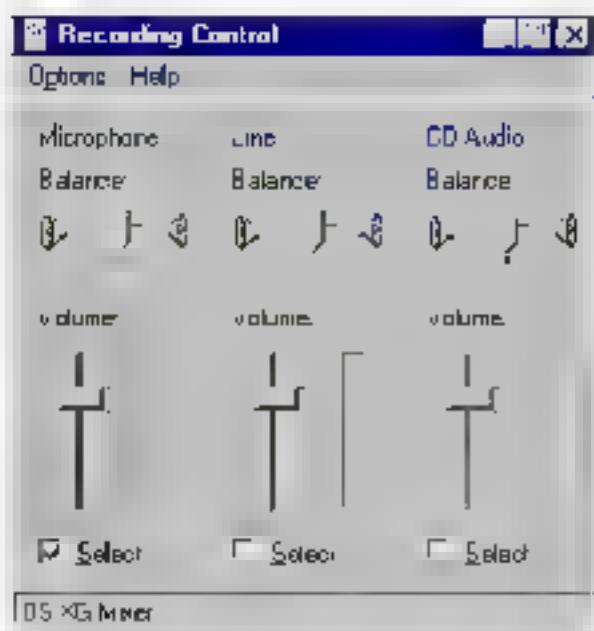

Figure 3-4. The Recording Control window.

3.   Adjust the volume as desired for each recording device by dragging the slide-bars vertically.

4.   Installing the YSTATION32 on Windows 95/98/NT
   ①   Insert the YAMAHA driver int CD-ROM Device.
   ②   Select .Run. from the Windows 95 start menu and enter
         .X:\Ystation\V3.18X\Ymt724\setup.exe.
         (X is CD-ROM location, eg: D:\ or E:\)
   ③ Follow the screen instructions to install the Program.

Back to Top

Installing the DS-XG Device Driver Software for Windows NT 4.0

1   Introduction

This guide describes the necessary procedures for installing the DS-XG device driver software for Windows NT 4.0. The following procedures will be covered in each section:

- Installing the DS-XG Device Driver Software
- Adjusting the DS-XG Mixer Control Settings

In order to properly install the DS-XG device driver to your computer follow in order the sections contained in this guide.

2   Installing the DS-XG Device Driver Software

This section contains the procedures for installing the DS-XG device driver software on your computer

2.1   Installing the DS-XG Device Driver

This section explains how to install the DS-XG device manager

1   Log on to Windows NT 4.0
2   Click the **Start** button on the Windows taskbar
3.   Highlight **Settings** and click on the **Control Panel** icon.
4   The *Control Panel* now appears. Double-click the **Multimedia** icon
5   The *Multimedia Properties* window now appears as shown in Figure 2.1 below Click on the **Devices** tab.
6.   Click the **Add** button.

Back to Top
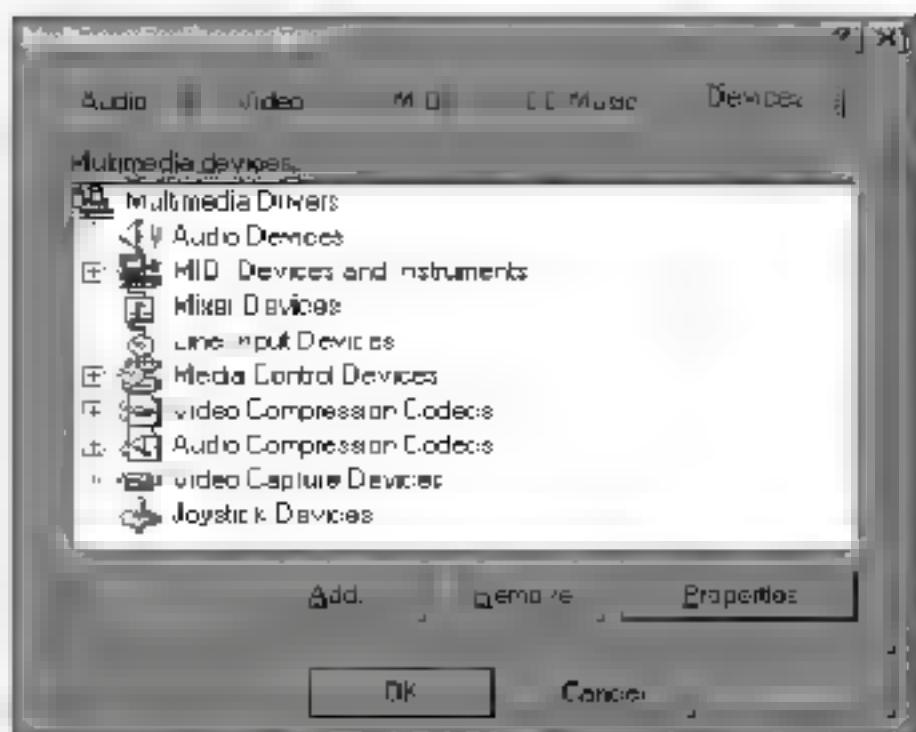
Figure2 1 TheMultimediaPropertieswindow

7)   TheAddwindownow appears HighlightUnlisted or Updated Driverby
   clickingonitasshown inFigure2 2below. Clickthe OKbutton.
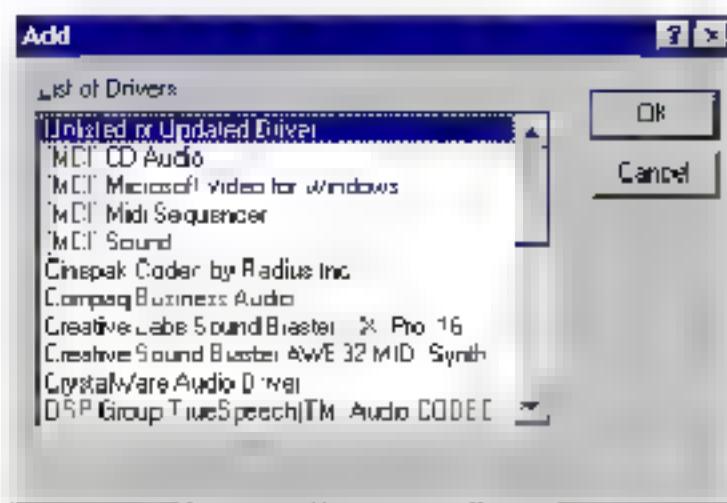
Figure2 2 TheAddwindow.

Back to Top

8)   Please insert YAMAHA CD driver into CD-ROM device and type
             .X:\Y724\winnt\V4.00.6016\.
             (X: is CD-ROM location, eg. D:\ or E:\)
      Click the OK button.

9)   Click on the desired language in the list and click the OK button as shown in
      Figure 2-3 below.

Figure 2-3 The Add Unlisted or Updated Driver window.

10)   Windows NT will now copy the necessary files to your computer. When the
      YAMAHA DS-XG Audio Driver window appears, verify that the MPU401 I/O
      address, IRQ, FM I/O address and Joystick I/O address settings are correct as
      shown in Figure 2-4 below. Click the .OK. button to continue.
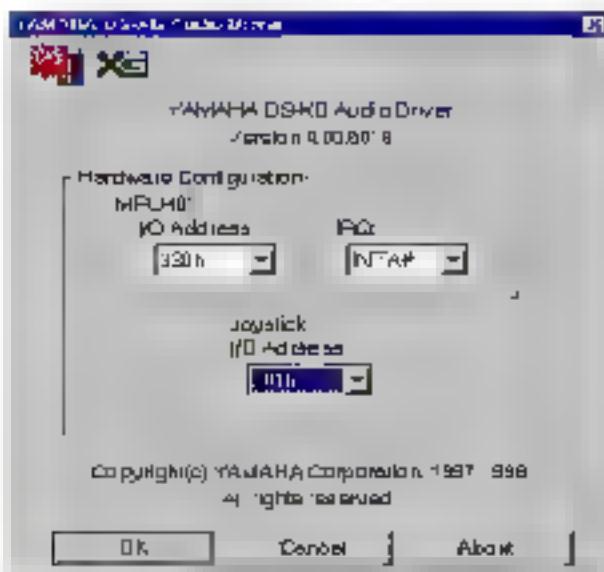
Figure 2-4 The YAMAHA DS-XG Audio Driver window

11. You need to restart your computer by clicking the Restart Now button. Your computer will now restart. This completes the installation of the DS-XG device drivers.

3. **Adjusting the DS-XG Mixer Control Setting.**
Please refer to the same steps described in the page 5-3.

Back to Top

Page Left Blank

Back to top

Appendix A:

A-1 MEMORY MAP

| Address Range	Size	Description
D0000-7FFFF]	512K	Conventional memory
80000-9FBFF]	127K	Extended Conventional memory
9FC00-9FFFF]	1K	Extended BIOS data area if PS/2 mouse is installed
A0000-C7FFF]	160K	Available for Hi DOS memory
C8000-DFFFF]	96K	Available for Hi DOS memory and adapter ROMs
E0000-EEFFF]	60K	Available for UMB
EF000-EFFFF]	4K	Video service routine for Monochrome & CGA adaptor
F0000-F7FFF]	32K	BIOS CMOS setup utility
F8000-FCFFF]	20K	BIOS runtime service routine (2)
FD000-FDFFF]	4K	Plug and Play ESCD data area
FE000-FFFFF]	8K	BIOS runtime service routine (1)

A-2 I/O MAP

000-01F]	DMA controller (Master)
020-02]	INTERRUPT CONTROLLER (Master)
022-023]	CHIPSET control registers I/O ports
040-05F]	TIMER control registers
060-06F]	KEYBOARD interface controller (8042)
070-07F]	RTC ports & CMOS I/O ports
080-09F]	DMA register
0A0-0BF]	INTERRUPT controller (Slave)
0C0-0DF]	DMA controller (Slave)
0F0-0FF]	MATH COPROCESSOR
1F0-1F8]	HARD DISK controller
278-27F]	PARALLEL port 2
2B0-2DF]	GRAPHICS adapter controller
2F8-2FF]	SERIAL port 2
360-36F]	NETWORK ports
378-37F]	PARALLEL port 1
3B0-3BF]	MONOCHROME & PARALLEL port adapter
3C0-3CF]	EGA adapter

Back to Top

[3D0-3DF]   CGA adapter
[3F0-3F7]   FLOPPY DISK controller
[3F8-3FF]   SERIAL port 1

A-3 TIMER & DMA CHANNELS MAP

TIMER MAP:
TIMER Channel 0   System timer interrupt
TIMER Channel 1   DRAM REFRESH request.
TIMER Channel 2   SPEAKER tone generator.
DMA CHANNELS:
DMA Channel 0   Available.
DMA Channel 1   Onboard ECP (Option).
DMA Channel 2   FLOPPY DISK (SMC CHIP)
DMA Channel 3   Onboard ECP (default).
DMA Channel 4   Cascade for DMA controller 1
DMA Channel 5   Available.
DMA Channel 6   Available.
DMA Channel 7   Available

A-4 INTERRUPT MAP

NMI
Parity check error.
IRQ (H/W).
0   System TIMER interrupt from TIMER 0.
1   KEYBOARD output buffer full
2   Cascade for IRQ 8-15.
3   SERIAL port 2
4   SERIAL port 1.
5   PARALLEL port 2.
6   FLOPPY DISK (SMC CHIP).
7   PARALLEL port 1
8   RTC clock.
9   Available.
10   Available.
11   Available.
12   PS/2 Mouse.
13   MATH coprocessor

Back to Top

14   Onboard HARD DISK (IDE1) channel.

15   Onboard HARD DISK (IDE1) channel.

A-5 RTC & CMOS RAM MAP

RTC & CMOS:

00	Seconds.
01	Second alarm.
02	Minutes.
03	Minutes alarm.
04	Hours.
05	Hours alarm.
06	Day of week
07	Day of month
08	Month.
09	Year.
0A	Status register A.
0B	Status register B.
0C	Status register C.
0D	Status register D.
0E	Diagnostic status byte.
0F	Shutdown byte
10	FLOPPY DISK drive type byte.
11	Reserve
12	HARD DISK type byte
13	Reserve
14	Equipment type
15	Base memory low byte.
16	Base memory high byte
17	Extension memory low byte
18	Extension memory high byte.
19-2d	
2E-2F	
30	Reserved for extension memory low byte
31	Reserved for extension memory high byte
32	DATE CENTURY byte
33	INFORMATION FLAG.
34-3F	Reserve.
40-7F	Reserved for CHIPSET SETTING DATA.

Back to Top

B-1 POST CODES

ISA POST codes are typically output to I/O port address 80h

POST (hex)	DESCRIPTION
01-02	Reserved
C0	Turn off OEM specific cache, shadow
03	1. Initialize EISA registers (EISA BIOS only).
	2. Initialize all the standard devices with default values
	Standard devices includes:
	- DMA controller (8237)
	- Programmable Interrupt Controller (8259)
	- Programmable Interval Timer (8254)
	- RTC chip
04	Reserved
05	1. Keyboard Controller Self-Test.
06	2. Enable Keyboard Interface
07	Reserved
08	Verifies CMOS's basic R/W functionality.
C1	Auto-detection of onboard DRAM & Cache.
C5	Copy the BIOS from ROM into E0000-FFFFF shadow RAM so that POST will go faster.
08	Test the first 256K DRAM.
09	OEM specific cache initialization. (if needed)
0A	1. Initialize the first 32 interrupt vectors with corresponding Interrupt handlers. Initialize INT numbers from 33-120 with Dummy (Spurious) Interrupt Handler.
	2. Issue CPUID instruction to identify CPU type.
	3. Early Power Management initialization. (OEM specific)
0B	1. Verify the RTC time is valid or not.
	2. Detect bad battery.
	3. Read CMOS data into BIOS stack area.
	4. PnP initializations including: (PnP BIOS only)
	- Assign CSN to PnP ISA card.
	- Create resource map from ESCD
	5. Assign IO & Memory for PCI devices. (PCI BIOS only)

Back to Top

0C	Initialization of the BIOS Data Area. (40:ON - 40 FF)
0D	1. Program some of the Chipset's value according to Setup. (Early Setup Value Program)
	2. Measure CPU speed for display & decide the system clock speed
	3. Video initialization including Monochrome, CGA, EGA/VGA. If no display device found, the speaker will beep.
0E	1. Test video RAM. (If Monochrome display device found)
	2. Show messages including:
	- Award Logo, Copyright string, BIOS Data code & Part No.
	- OEM specific sign on messages.
	- Energy Star Logo. (Green BIOS ONLY)
	- CPU brand, type & speed.
	- Test system BIOS checksum. (Non-Compress Version only)
0F	DMA channel 0 test.
10	DMA channel 1 test.
11	DMA page registers test.
12-13	Reserved.
14	Test 8254 Timer 0 Counter 2.
15	Test 8259 interrupt mask bits for channel 1.
16	Test 8259 interrupt mask bits for channel 2.
17	Reserved.
19	Test 8259 functionality.
1A-1D	Reserved.
1E	If EISA NVM checksum is good, execute EISA initialization. (EISA BIOS only)
1F-29	Reserved.
30	Detect Base Memory & Extended Memory Size
31	1. Test Base Memory from 256K to 640K.
	2. Test Extended Memory from 1M to the top of memory
32	1. Display the Award Plug & Play BIOS Extension message. (PnP BIOS only)
	2. Program all onboard super I/O chips (if any) including COM ports, LPT ports, FDD port... according to setup value
33-3B	Reserved.
3C	Set flag to allow users to enter CMOS Setup Utility.
3D	1. Initialize Keyboard.
	2. Install PS2 mouse.

Back to Top